

30 JUL 1986

In Reply T-3-2  
Refer To: C(85)C336  
EPA ID No. CAD000072769

Jack L. Caulfield  
Manager of Environmental Affairs  
Tosco Corporation  
Post Office Box 2860  
Bakersfield, California 93303

Dear Mr. Caulfield:

A preliminary site inspection was made of Bakersfield Refinery site on August 16, 1986. A copy of the investigation report is enclosed for your information.

Comments may be provided by you concerning any aspect of the report. In your response please refer to report number C(85)C336.

EPA routinely provides copies of investigation reports to State agencies. Such releases will be handled according to the basic rules governing business confidentiality claims contained in the Code of Federal Regulations (40 CFR Part 2). Any claim of confidentiality should be made within fifteen (15) working days from the receipt of this letter. EPA will construe a failure to furnish timely comments as a waiver of the confidentiality claim.

If you have questions concerning this report, please contact Paul La Courreys, Superfund Programs Branch at (415) 974-8135.

Sincerely,

Original Signed By:

Kathleen G. Shimmin  
Chief, Field Operations Branch

Enclosure

cc Dave Hartley, DOHS

30 JUL 1986

In Reply T-3-2  
Refer To: C(85)C336  
EPA ID No. CAD000072769

Dave Hartley  
Toxics Substances Control Division  
California Department of Health Services  
714 "P" Street  
Sacramento, CA 95814

Dear Mr. Hartley,

A copy of the investigation report C(85)C336 is enclosed for your information. The inspection was conducted by Ecology & Environment under contract to the EPA.

Please allow 20 days from the date the report is received by your office before releasing the information, in order to give the facility the opportunity to claim confidentiality.

If you have any questions or comments, please direct them to Paul La Courreys, Enforcement Section at (415) 974-8135.

Sincerely,

Original Signed By:

Kathleen G. Shimmin  
Chief, Field Operations Branch

Enclosure

bc T-4-4, La Courreys

## MEMO OF CALL

Name: C. Scott Smith Date: 2/17/84Firm: CVRWQCB - Fresno Time: 10:30 a.m.Address: \_\_\_\_\_ Person Taking or Making Call: Sue StackTelephone No.: (209) 445 5116Subject: TOSCO Refinery in Bakersfield

Message: \_\_\_\_\_

was a new cleanup and abatement order issued  
after Jan 3 1984? Was it different?

yes — Feb 3 '84 — NO-slight changes  
but nothing  
substantial

what is the current status of the facility?

partially shut down - no  
discharges are occurring  
but they are still using the  
facility minimally to keep  
the gears lubed

*Lincoln*  
*GRWQ CB Fresno*

3 January 1984

CERTIFIED NO. 903234

Mr. Jack Caufield  
Tosco Corporation  
P. O. Box 2860  
Bakersfield, CA 93303

CONTAMINATION ASSESSMENT PROGRAM - FRUITVALE REFINERY, KERN COUNTY

We have reviewed the Corporation's contamination assessment program. For reasons outlined in the enclosed staff report, we believe that the Corporation's response to most items contained in our letter to you dated 11 March 1983 are incomplete and/or insufficient.

Because of the deficiencies in this program and the apparent leakage occurring from the Emergency pond (also discussed in the staff report), we are issuing the enclosed Cleanup and Abatement Order. The Order contains specific tasks which must be completed by the dates indicated.

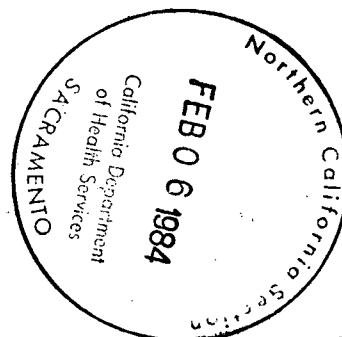
If you have any questions on these matters, please telephone Scott Smith at this office.

LOREN J. MARLOW  
Supervising Engineer

CSS:lay

Enclosures

cc: Ms. Betsy Miller, Legal Division, State Water Resources Control Board



*CLL*  
*4 JAN 84*

*Jan*  
*1/4/84*

*[Signature]* *1/4/84*

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD  
MEMORANDUM

TO: F. Scott Nevins

3 January 1984

FROM: C. Scott Smith

SUBJECT: TOSCO CORPORATION (TOSCO)- CONTAMINATION ASSESSMENT PROGRAM -  
FRUITVALE OIL FIELD, KERN COUNTY

I have reviewed Tosco's contamination assessment program. My comments on the proposed plans and time schedules are summarized below. Item numbers listed below pertain to individual required outputs of Task No. I as defined in our letter to Tosco dated 11 March 1983.

1. The toxic organic content of wastes previously discharged to the abandoned unlined ponds is not provided. Apparently, they have no analytical data in this area. However, the report indicates that the soils toxic content will be addressed in the soils sampling program.
2. They propose to expand the magnetic surveys to discern the location of any buried drums in abandoned disposal areas and this is not, in itself, adequate. The information they have provided indicates that chemicals may have been disposed at each of the identified sites. Magnetic surveys cannot discern their presence and this has not been addressed in their proposed program.

In addition, excessive levels of total chromium, lead, and zinc were reported by Tosco (Part B Application dated 1 August 1983) for soil samples collected in a disposal area north of the unlined ponds. A sampling program to determine the extent of these heavy metals is not presented.

3. The soils contamination assessment program presented was not prepared by a licensed engineer or geologist as required. The program does not present a clear description of sampling elevations, nor a clear definition of sampling techniques, laboratory procedures, and constituents to be tested. In addition, a program for assessing the extent of chromium in soils at Pond No. 1 (as requested in our letter dated 31 May 1983) is not provided.

The ground water contamination assessment program presented is insufficient. Although ground water degradation has been discerned, they have indicated that the implementation of the program as presented is "conditional" on the confirmation of ground water contamination. A program to define the extent of contamination needs to be initiated now rather than its postponement until after an additional year of sampling the presently employed monitoring wells. Other areas in which I have problems with the program as proposed can be summarized as follows:

- a. Although the geophysical surveys performed to date have been a useful tool in locating contaminated ground water in the northern area of the facility, I do not believe that the surveys can be regarded as complete, and by themselves, be used as a basis for concluding that contaminants are not present in ground water in other areas surveyed. Existing shallow ground water conditions make it difficult to discern anomalies, particularly if contaminants present do not have strong electrical properties.

3 January 1984

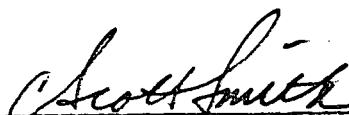
- b. The program is too general in nature and lacks commitment to a clearly defined contamination assessment program.
  - c. The time schedule proposed is for too long a period given the rate of movement of ground water in the area, and the period that the wastewater ditch (the apparent source of contamination) was in use.
4. The proposed time schedule for the replacement of the Harvest pond primary liners is not acceptable. The ponds will need to be replaced in a more expeditious manner.
5. After further evaluation of the engineering plans for the Harvest pond leak detection system's (system) design, and meeting with Messrs. Caufield and Kerstan of Tosco, we agreed that the integrity of the secondary liner and performance of the system could be monitored by observing system and pond water levels and installing shallow monitoring wells immediately downgradient of the ponds. I believe we should require the implementation of both of these monitoring measures.

#### Emergency Pond

In our letter to Tosco dated 31 May 1983, we provided an outline of specific areas that need to be addressed in their assessment of the Emergency pond's ability to protect ground water. No information has been provided as requested regarding the estimated area of influence of the system and methods for monitoring the primary liner's performance when ground water is at or above the level of system pipe.

We also requested information on the proposed frequency of use of the pond and no information was provided. Presumably, the Emergency pond will continue to be used on nearly a year-round basis.

Monitoring results for the system submitted over the last four months have indicated electrical conductivities (EC) ranging from 700 to 1,200 umhos/cm. These levels are much higher than background levels reported for monitoring well U3 and previously reported levels in the leak detection system. I believe this is an indication of problems with the pond's primary liner. The elevated EC's serve as an indicator of leakage and concern centers around the high levels of chromium present in the pond wastewater.

  
C. SCOTT SMITH, Staff Engineer

CSS:iay

RWO CB  
Fresno

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER  
FOR  
TOSCO CORPORATION  
FRUITVALE OIL FIELD  
KERN COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. Tosco Corporation (hereafter Discharger) operates a facility in western Bakersfield where crude oil is refined into gasoline and lesser amounts of diesel, fuel oil, propane, butane and isobutane mix.
2. The Discharger has recently terminated refining activities for an indefinite period of time.
3. Numerous wastestreams are generated in refining processes which contain contaminants.
4. Waste discharge requirements (Order No. 77-254) were adopted on 28 October 1977 and contain effluent limitations for wastewater discharged to unlined ponds. The discharge to the ponds has been in violation of effluent limitations contained in these requirements.
5. In November 1980, discharges to the unlined ponds were terminated. Four lined facilities (the Emergency pond and east, middle and west Harvest ponds) were employed for retention of certain wastestreams prior to on-site disposal via deep well injection.
6. The primary liners of the Harvest ponds have been found to be leaking the majority of the time since monitoring of the leak detection systems began in March 1981.
7. A quarterly ground water quality monitoring program was implemented at the facility in November 1981 pursuant to an Interim Status Document issued by the Department of Health Services. The first six quarters of monitoring has discerned contamination of ground water in two downgradient monitoring wells in the northwest end of the facility. Contaminants present include arsenic and phenols.
8. Areal ground water depths vary generally from 20 to 60 feet depending on recharge from the Calloway Canal and Kern River, immediately north and south, respectively, of the facility.
9. Ground water quality in the area varies, but is generally of acceptable mineral and organic content, and has the following beneficial uses:
  - a. Municipal and domestic supply
  - b. Agricultural supply
  - c. Industrial supply

CLEANUP AND ABATEMENT ORDER  
TOSCO CORPORATION  
FRUITVALE OIL FIELD  
KERN COUNTY

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10. By letter dated 11 March 1983, the Board requested the Discharger to develop plans and time schedules for defining the extent of ground water contamination and contaminants in the soils associated with their discharges; corrective measures to prevent continued leaking of the Harvest ponds; an assessment of the need for a soils and/or ground water sampling program at other abandoned disposal areas at the facility; and an assessment of the Emergency pond's ability to protect ground water quality.
11. The Discharger has responded to the Board's letter of 11 March. Most of the Board's requests were not addressed, and for others, the plans and time schedules proposed were not adequate.
12. Past waste disposal practices of the Discharger have created a condition of pollution of local ground water supplies.
13. The use of the Harvest ponds and Emergency pond in their present condition threatens to create further pollution of local ground water supplies.
14. Other sites at the facility previously used for waste disposal, threaten to create further pollution of local ground water supplies.
15. The issuance of this Order is in accordance with Section 13304(a) of the California Water Code, which states:

"Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirements or other order or prohibition issued by a Regional Board or the State Board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the Regional Board, clean up such waste or abate the effects thereof or, in the case of threatened pollution or nuisance, take other necessary remedial action. Upon failure of any person to comply with such Cleanup and Abatement Order, the Attorney General, at the request of the Board, shall petition the superior court for that county for the issuance of any injunction requiring such person to comply therewith. In any such suit, the court shall have jurisdiction to grant a prohibitory or mandatory injunction, either preliminary or permanent, as the facts may warrant."

16. The issuance of this Order is an enforcement action by a Regulatory Agency and as such, is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21000, et seq.), in accordance with Section 15321(a)(2), Chapter 3, Title 14, of the California Administrative Code.



CLEANUP AND ABATEMENT ORDER  
TOSCO CORPORATION  
FRUITVALE OIL FIELD  
KERN COUNTY

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17. A Cleanup and Abatement Order was issued to the Discharger by the Executive Officer on 3 January 1984.
18. On 25 January 1984, Board staff met with the Discharger to discuss the 3 January Order. It was determined at the meeting that certain modifications needed to be made to the Order.
19. The Cleanup and Abatement Order issued on 3 January is hereby rescinded.

IT IS HEREBY ORDERED, that pursuant to Section 13304 of the California Water Code, Tosco Corporation shall implement the following remedial actions according to the prescribed time schedule to abate evidenced and threatened conditions of nuisance and pollution.

All work outlined below shall be performed under the direction of a licensed engineer, engineering geologist, or geologist competent in performing investigations of this nature. Supporting data and rationale shall be submitted by the Discharger for each proposed plan.

All plans and time schedules are subject to approval by the Executive Officer. Submitted time schedules become part of this Order once approved or revised by the Executive Officer.

ACTION

DATE FOR SUBMITTAL  
OF COMPLIANCE REPORT

A. Development of Plans for Problem Assessment

1. Submit a plan for the collection and analysis of a ground water sample(s) to determine all contaminants (toxic organic plus those presently monitored pursuant to the Corporation's Interim Status Document) present in ground water resulting from the past use of the wastewater ditch.

15 March 1984

2. Collect, analyze, and submit results for the sample(s) collected in accordance with A.1.

1 May 1984

3. Submit plans and time schedules for determining and deferring the following:

- a. The vertical and lateral extent of any contaminants in the soils and ground water at all abandoned disposal sites identified in the Discharger's waste discharge application dated 15 September 1983.

1 July 1984

CLEANUP AND ABATEMENT ORDER  
TOSCO CORPORATION  
FRUITVALE OIL FIELD  
KERN COUNTY

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ACTION

DATE FOR SUBMITTAL  
OF COMPLIANCE REPORT

- b. The vertical and lateral extent of any ground water degradation and contaminants in the soils at the unlined ponds associated with previous discharges at the facility. The plan should include a description of the location and construction of any additional monitoring wells, and the location and depth for the collection of soils and ground water samples.

15 April 1984

- c. The appropriate location and construction of shallow ground water monitoring wells for detecting leakage from the Harvest and Emergency ponds

- d. The vertical and lateral extent of any ground water degradation associated with the use of the Emergency pond.

15 April 1984

B. Implementation and Completion of Problem Assessments

1. Complete the construction of monitoring wells and implement the sampling and monitoring programs according to the plans and time schedules developed in A.3.a., b., c., and d.
2. Submit a plan for the operation and use of the Harvest ponds and installation of the primary liners 20 days prior to any discharge to the Harvest ponds.
3. Submit a report defining the extent of contamination according to the plans and time schedules developed in A.3.a., b., and d., above.

C. Corrective Actions

1. Submit a plan and time schedule for the containment and cleanup of contaminated ground water and removal of contaminated soils identified in B.3 within 30 days after the completion of B.3.

CLEANUP AND ABATEMENT ORDER  
TOSCO CORPORATION  
FRUITVALE OIL FIELD  
KERN COUNTY

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ACTION

DATE FOR SUBMITTAL  
OF COMPLIANCE REPORT

2. Implement remedial measures according to the plan and time schedule developed in C.1.

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WILLIAM H. CROOKS  
Executive Officer

DATED:

CSS:iay

RWQCB  
Fresno

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD  
MEMORANDUM

TO: F. Scott Nevins *fsn* 30 August 1983  
FROM: C. Scott Smith  
SUBJECT: TOSCO CORPORATION (TOSCO) - QUARTERLY GROUND WATER MONITORING

We received a letter from Jack Caufield to Tosco regarding their ongoing quarterly ground water quality monitoring. Tosco maintains that:

1. The first and fourth quarterly monitoring results should be disregarded because the Corporation, "...inadvertently neglected to change the time interval for pumping out the well bores..." when a 5 hp portable submersible pump was replaced with in-place 1/3-hp submersible pump.
2. All previous monitoring results for monitoring well No. D2 should be disregarded because of low yields experienced during well bore pumping and entrainment of suspended solids.
3. The statistical methods prescribed by EPA for assessing the significance of ground water monitoring data may not be appropriate because "contamination of upgradient well U1 creates a bimodal distribution of indicator parameters and violates a basic assumption of the Cochran approximation to the Fisher-Behran test that each sample is selected from a normal distribution with homogenous variance within each group...(which) raises the question of how appropriate the (EPA) method is for determining significant differences between the up and downgradient wells."
4. Due the above, it is not valid to perform the statistical tests specified in the I.S.D. on present data.

RESPONSE:

The fact that an insufficient number of well bores volumes was extracted prior to sample collection in all wells in the first and fourth quarters is insignificant as excessive levels of certain contaminants are consistently showing up in the same wells each quarter.

The presence of suspended solids in samples extracted from monitoring well D2 does not invalidate the monitoring results as their presence has no effect on what has been consistently found to be excessive levels of sodium and sulfate.


The fact that well U1 is exhibiting excessive levels of contaminants raises the question of additional onsite or offsite sources of contamination but does negate the validity of the first five quarters of monitoring data. The direction of ground water movement fluctuates in the area and the expanded ground monitoring program that Tosco is now formulating needs to address this. Perhaps an additional monitoring well needs to be established to help discern the source of excessive contaminant levels being exhibited in wells U1 and D1.

TOSCO CORPORATION

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30 August 1983

In conclusion, the monitoring data submitted to date for the purpose of establishing background contaminant levels indicates that excessive levels of contaminants in wells D1 and D2 are a result of wastewater disposal practices at the Tosco facility. The presently employed monitoring wells should be continued to be used for monitoring potential sources of contamination, however additional monitoring wells are now needed to determine the extent of contamination.



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C. SCOTT SMITH  
Staff Engineer

CSS:iay

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD  
MEMORANDUM

TO: F. Scott Nevins *hmn* 23 August 1983

FROM: C. Scott Smith

SUBJECT: TOSCO CORPORATION (TOSCO) - RCRA HAZARDOUS WASTE FACILITY PERMIT  
APPLICATION AND OPERATION PLAN, PART B

On 2 August 1983, we received a copy of the subject application. On 10 August I spoke with Fred Lercari (Technical Services) regarding time frames for our review of the application. Fred indicated that they would need our comments on the adequacy of the application by 15 August. He referred me to a checklist that has been prepared to be used in the evaluation of applications. He further indicated that only a cursory evaluation should be performed at this time to determine if the application is worthy of a more detailed evaluation or if it should be rejected due to excessive deficiencies. I talked again with Fred on 16 August regarding time frames and outputs for our in-depth review of the application. He indicated that a 42-page evaluation checklist is forthcoming that should be used for the more detailed evaluation and that our findings should be submitted by 30 September.

I have completed a preliminary review of the application. Using the checklist provided (copy attached), I found that there were no "gross" deficiencies in the application.

On 15 August, I talked with Fred and Bud Eagle (also of Technical Services) about the application. I indicated that each area on the checklist was "covered" in the application, that it was acceptable for continued review, but that considerably more information needs to be provided in certain areas by Tosco. I discussed these areas with Fred and Bud and they can be summarized as follows.

1. Surface Impoundments
  - A. Inadequacy of the design of the Emergency Pond leak detection system.  
(does not meet RCRA design standards)
  - B. Implications of continued leakage problems associated with the Harvest ponds.
2. Waste Characterization
  - A. No analysis for toxic organic constituents commonly found in untreated refinery wastewater.
3. Ground Water Monitoring
  - A. No discussion on the expanded ground water monitoring program to address the extent of ground water contamination.


23 August 1983

- B. Statistical analysis of monitoring data developed to date was performed on indicator constituents (TOC, TOH, pH, EC) per their I.S.D. but not on constituents that have been found at excessive levels (arsenic, phenols, sodium and sulfate).

4. Contaminants in Soils

- A. No discussion was presented on a program to assess the depth and extent of soils contamination in the unlined ponds associated with past disposal practices.

I indicated that we have directed Tosco to address each of these above areas and that until they are addressed, the application should not be regarded as complete for purposes of developing a hazardous waste permit.



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C. SCOTT SMITH  
Staff Engineer

CSS

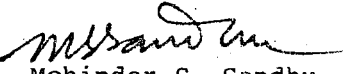
cc: Mr. Tom Pinkos  
Dr. Fred Lercari, Technical Services  
Mr. Bud Eagle, Technical Services

## Memorandum

To : File:  
Tosco Corporation,  
Bakersfield

Date : June 22, 1983

Subject: Hazardous Waste Facility  
Permitting

From :   
Mohinder S. Sandhu  
District Engineer

Bill Kerstan, Jack Caufield and Karen Rasmussen from Tosco Corporation met with me regarding submittal of upcoming Part B application to U.S. EPA. They had several questions regarding the applicability of State and Federal regulations to their specific situation. Mainly, they needed clarification on permitability of various wastewater treatment units some of which are used for oil recovery. They have conducted chemical testing on individual wastestreams that are discharged to the wastewater treatment process and have tentative results indicating these wastestreams are nonhazardous pursuant to latest CAM criteria. Their basic contention was that they do not believe they are RCRA hazardous waste treatment, storage disposal facility and wanted to know if they still must submit Part B to U.S. EPA.

I suggested that they should contact U.S. EPA in writing immediately and submit information supporting their claim. If the U.S. EPA agrees that they are exempt from RCRA permitting activity, then the state may consider extension for the submittal of O.P. They agreed to follow my suggestion and will submit a copy of their submittal to U.S. EPA to this office.

MSS/jw

cc: Bill Wilson, U.S. EPA, Region IX  
Jim Pappas, Central Region



RWQCB-  
Fresno

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD  
MEMORANDUM

TO: F. Scott Nevins *FSN*

25 May 1983

FROM: C. Scott Smith

SUBJECT: STAFF REPORT, TOSCO CORPORATION - FRUITVALE OIL FIELD, KERN COUNTY

On 6 April 1983, we received a letter from Jack Caufield of TOSCO Corporation (TOSCO). The letter was in response to a letter from staff dated 11 March 1983 (and an accompanying staff memo dated 9 March 1983) containing specific tasks and completion dates for addressing contaminants in the soils, ground water degradation, and problems with wastewater storage ponds at their facility. Their letter contained numerous comments and questions, and asked for clarification on certain tasks. On 27 April, you and I met with Mr. Caufield and Bill Kerstan of TOSCO to discuss their concerns. Summarized below are the specific areas in which TOSCO needed further clarification. Specific areas discussed are grouped below according to tasks as outlined in our letter of 11 March.

Task No. I - Development of Plans for Problem Assessment

Prior to 1 May 1983, submit a report (subject to our review and concurrence) which includes the following information:

Item I - 1. Identification of all potential contaminants that have been disposed in surface facilities (wastewater ditch, unlined disposal ponds, harvest ponds, and emergency pond).

TOSCO Comments:

A clarification was requested by the TOSCO representatives regarding the type of information that needs to be provided pertaining to the various waste streams. They also commented on the limited amount of data available on previous discharges to the unlined ponds and wastewater ditch.

Staff Comments:

Numerous waste streams have been disposed at the facility, including TTC scrubber water, flare pit water, boiler blowdown, coker scrubber water, cooling tower blowdown, sour stripper water, desalter water, and spent caustic. Some of these waste streams were previously disposed in the wastewater ditch and unlined pond, and others have been disposed in the injection wells since their construction. Changes in refining operations have occurred in recent years, and we have not received an update on the generation of any new waste streams. We do not have a clear description of the source, chemical character, volume, and point of discharge for all of the waste streams that have been discharged.

25 May 1983

The petroleum refining industry in general discharges significant quantities of toxic pollutants. The actual levels of toxics discharged in any given refinery will vary with chemical nature of the crude oil being processed, processes used, products produced, and degree of treatment prior to discharge.

In 1979, EPA conducted a sampling program designed to analyze for the presence of toxic substances in refineries' raw wastewater and in treated effluent. The program included numerous refineries nationwide and the results were published in EPA's "Development Document for Effluent Limitations Guidelines and Standards for the Petroleum Refining Point Source Category". Table I (derived from the Document) summarizes the ranges of concentrations observed for those toxic substances detected in raw wastewater in a minimum of one sampling. Also given in Table I for comparison are established allowable concentration limits for the same. For refineries using biological treatment of raw waste, only a few cases were found where undesirable levels of toxic organic substances appeared in the final effluent. Not provided in the Development Document was the information necessary to make correlations between refinery processes (other than biological treatment) and raw wastewater characteristics. With the absence of any biological treatment prior to discharge, there is concern regarding which toxic organics may be present in the waste streams.

Previous analyses which TOSCO submitted for some of the waste streams included three of the substances listed on Table I (chromium, phenols and cyanide). In addition, soil samples collected in the upper profile of the wastewater ditch were found to have high levels for three of the heavy metals listed in Table I (chromium, lead, and zinc), and for three others not listed (mercury, nickel, and vanadium).

- Item I - 2. A description of the abandoned disposal area, including (a) the location and period of use; (b) the types and estimated volumes of wastes discharged; (c) description of the disposal site (depth, surface area, and information on any liner materials used); (d) a description of the disposal activity itself (methods of conveyance and disposal of wastes); and (e) a preliminary assessment of the need for any soils and/or ground water sampling considering your responses to (a) through (d).

TOSCO Comments:

The TOSCO representatives indicated that little information is available regarding past activities in the abandoned disposal area, and that only its general, not exact, location is known to them.

Staff Comments:

On 10 June 1981, TOSCO submitted a Notice of Hazardous Waste Site with the EPA as required by the Comprehensive Environmental Compensation and Liability Act. TOSCO indicated that an abandoned disposal area had been

previously used for disposal of refinery wastes, but that the types of wastes, their chemical character, and exact location of discharge were not known. We learned of the situation from Dan Shane of EPA.

TOSCO should provide whatever information is available, even though it may be only general and somewhat limited. The information will be the starting point for determining if a sampling program is necessary, and if so, its scope and extent.

- Item I - 3. A plan for the determination of the origin, and the vertical and lateral extent of ground water degradation, and of contaminants in the soil associated with the Corporation's discharge. The plan should include a time schedule for initiation and completion of the study.

#### Ground Water Degradation

##### TOSCO Comments:

The TOSCO representatives maintained that additional quarterly ground water quality monitoring data is needed before it can be concluded that water quality degradation has occurred as a result of waste disposal practices.

##### Staff Comments:

The quarterly ground water monitoring submitted to date has continually indicated a difference in concentration between the upgradient and three of the downgradient monitoring wells for numerous contaminants. Three of the constituents listed in Table I are presently being monitored for, and two of them (phenols and arsenic) have consistently been found high in one of the downgradient monitoring wells. Degradation of ground water is clearly discernible.

#### Contaminants in the Soils

##### TOSCO Comments:

The TOSCO representatives indicated that (1) a soils sampling excavation program for the four unlined ponds has been previously submitted; (2) sampling and excavation has been initiated in Pond No. 1; and (3) the soils sampling and excavation program was completed in the wastewater ditch. They inquired as to adequacy of the work completed to date on 1, 2, and 3 above.

##### Staff Comments

Soil samples were collected at varying depths and locations along the unlined wastewater ditch and analyzed for a full range of heavy metals. Samples of the surface sludge were found to contain concentrations for several heavy metals in excess of the CAM TTLC. Soils to a depth varying between 6 and 10 feet were removed. Samples collected at varying locations in the excavated trench were found to contain heavy metals concentrations well below the CAM TTLC.

25 May 1983

In October 1981, we received a letter from TOSCO outlining a procedure for sampling and excavation of contaminated soils in the four unlined ponds. The letter also indicated that some excavation has already occurred in Pond No. 1. On 4 May 1983, we received a letter from TOSCO containing the results of soil sampling for heavy metals in Pond No. 1 that occurred after the initial excavation. From four locations (two on the outer edge of the pond and two from the bottom), samples were collected at the surface and at 5 and 10 feet. Samples were then composited for each depth and analyzed for the full range of toxic heavy metals. The total chromium concentration (determined by acid extraction) reported for the surface composite was 143 mg/kg (average of two extractions) which is nearly three times the July 1981 CAM TTLC of 50 mg/kg. For all other composite samples, no excessive levels for any of the heavy metals were discerned.

In Pond No. 1, our concern centers around the threat posed to ground water from soluble chromium in the soils and we need to have their depth and extent determined.

The sampling program conducted to date was adequate to discern high levels of total chromium in Pond No. 1. However, to determine the potential impact on ground water quality, soluble chromium levels need to be determined. To obtain a clearer description of contaminant distribution in the soils, the remaining samples should not be composited prior to analysis.

Finally, the soils sampling program does not address toxic organics. Additional soil analyses should address their presence in waste streams that have been discharged to the unlined ponds.

- Item I - 4. A plan that describes corrective actions to be taken to prevent continued leaking of the harvest ponds. The plan should include a time schedule for initiation and completion of the corrective measures.

TOSCO Comments:

The TOSCO representatives inquired as to the type of information they need to provide regarding the liner material they propose to use to remedy the primary liner leakage problem.

Staff Comments:

The information submitted to date regarding the proposed liner has been in the form of brochures from the liner manufacturer. The brochures provide only general information on liner characteristics. However, we need more specific information, as outlined below, before we can evaluate the adequacy of the proposed liner.

A. Liner Specifications and Characteristics

1. Compatability with the wastes.
  - a. Temperature considerations
  - b. Chemical resistance to wastewaters and bottom sludges, taking into account stratification of wastes and any localized accumulation.
2. Estimated longevity of liner given the prescribed use.
3. Permeability

B. Field Installation

1. Method of application of liner material.
2. Measures to ensure proper installation.
3. Application thickness

C. Inspection and Repair

1. Frequency of visual inspections.
2. Method of performing any needed repairs.

D. Other considerations

1. Climatological effects on exposed portions of liner.
2. Procedure for removing bottom deposits and description of measures that will be taken to prevent damage to the liner.

Item I - 5. Assessment of the adequacy of the harvest pond leak detection system, specifically addressing (a) the condition of the secondary liner after continued exposure to wastewater, and (b) the appropriateness of the leak detection system design for early detection of the primary seal leakage.

TOSCO Comments:

The TOSCO representatives questioned the need to address (a) and (b) above, and maintained that the liner selection and leak detection system design were adequate because the specifications were submitted previously for staff review.

In February 1980, TOSCO submitted design specification and liner characteristics for the harvest ponds. A letter from staff to TOSCO dated 29 February 1980 stated, in part, the following:

"Our review of the plans indicates that you will have met the intent of our requirements by installation of the above ponds and the previously installed wastewater injection wells."

25 May 1983

Staff Comments:

Staff evaluations of leak detection systems are based on the adequacy of the design, construction, and materials selection to detect leakage. Continuous leakage in each of the pond's primary liner has resulted in the secondary liners having sustained exposure to the wastewater. Therefore, our concern centers around the condition of the secondary liner and its ability to continue monitoring the performance of the primary liner.

The water level in the leak detection system itself can be monitored via the standpipe located at the downstream end of the monitoring pipe in each pond. Any drop in the water level in the standpipe would be an indication of leakage from the secondary liner and subsequent impairment of the ability of the leak detection system to adequately function. Therefore, the new waste discharge requirements should contain a monitoring and reporting requirements for standpipe water levels.

Emergency Pond - In our 11 March 1983 correspondence, we indicated to TOSCO that new waste discharge requirements would contain minimum performance criteria for the emergency pond and the redesign of the leak detection system should be initiated soon and coordinated with staff.

TOSCO Comments:

The TOSCO representative questioned the need to redesign the leak detection system and maintained that the liner selection and leak detection system design were adequate because the specifications were submitted previously for staff review.

In February 1980, TOSCO submitted design specification and liner characteristics for the emergency pond. A letter from staff to TOSCO dated 29 February 1980 stated, in part, the following:

"Our review of the plans indicates that you will have met the intent of our requirements by installation of the above ponds and the previously installed wastewater injection wells."

Staff Comments:

Inspections at TOSCO and monthly monitoring reports have indicated that the pond is being used for more than just emergencies. It appears that its use is a frequent and scheduled occurrence. Staff's original evaluation of the emergency pond was based on the premise that it would be used on an emergency basis only. Our concerns center around whether or not the design of the pond and materials selection is adequate given the indicated frequency of use.

25 May 1983

In addition, standing water has been reported in the leak detection system for about four months in the last two years due to ground water encroachment. There is no indication that leakage of the primary liner has occurred yet. However, we are concerned that should leakage actually occur, it could go undetected if the ground water level is at or above the leak detection pipe.

To address the use of the emergency pond in the new waste discharge requirements and evaluate the adequacy of the design given its frequency of use, the following areas need to be addressed in the engineering report:

A. Liner Characteristics

1. Compatability with the wastes
2. Estimated longevity of the liner given the prescribed use

B. Installation

1. Precautions taken to prevent puncture of the primary liner from the subgrade or overburden
2. Description of field seams

C. Leak Detection System

1. Estimated area of influence
2. Method for monitoring primary liner performance when ground water has encroached the leak detection pipe

D. Frequency of Use

1. Estimated number of days per year that emergency pond contains wastewater

  
\_\_\_\_\_  
C. SCOTT SMITH  
Staff Engineer

CSS:iay

Attachment

TABLE 1

## EPA PRIORITY POLLUTANTS DETECTED IN REFINERY WASTEWATER

<u>Constituents</u>	<u>No. of Samples</u>	<u>Concen- tration Range (ug/l)</u>	<u>Allowable Concen- tration (ug/l)</u>	<u>Source of Allowable Concen- tration**</u>
<b>Volatile Organics</b>				
Benzene	17	*ND- 5300	1.5	2
Chloroform	15	ND- 1500	.2	1
1,2 Trans-dichloroethylene	3	ND- 20	2.7	4
1,2-Dichloroethane	5	ND- 16	7	1
Ethylbenzene	15	ND- 180	1100	2
Methylene Chloride	19	ND- 1600	2.0	1
Toluene	18	ND-12000	340	4
Tetra-chloroethane	5	ND- 50	.2	1
<b>Acid Extractable Organics</b>				
2,4 Dimethylphenol	9	ND- 1200	Not estab.	--
2-Nitrophenol	1	1400	Not estab.	--
4-Nitrophenol	4	20- 5800	Not estab.	--
2,4 Nitrophenol	3	ND-11000	Not estab.	--
Pentachlorophenol	3	ND- 40	140	2
Phenol		13- 4900	3400	2
<b>Base/Neutral Extractable Organics</b>				
Acenaphthene	5	ND- 220	20	2
Anthracene and/or Phenanthrene	4	5- 230	Not estab.	--
1,4 Dichlorobenzene	1	1230	230	2
Fluoranthene	8	ND- 8	200	2
Isophene	2	230- 550	460	2
Napthalene	17	ND- 3200	143	2
<b>Heavy Metals</b>				
Antimony	10	1- 360	145	5
Chromium	58	1- 2000	50	3
Copper	54	2- 1400	Not estab.	--
Lead	58	2- 960	50	3
Zinc	38	24- 3400	5000	2
<b>Other</b>				
Arsenic	14	3- 480	.02	2
Cyanide	4	ND- 3500	200	2
Phenolic Compounds	8	37-11200	1.0	-2

\*ND - Not detected

\*\* 1 - EPA Water Quality Criteria (WQC),  $10^{-6}$  Cancer Level Risk

2 - EPA WQC, Toxic Effects

3 - EPA Drinking Water Standards

4 - National Academy of Sciences, SNARLS

5 - EPA Suggested Limit



## MEMO OF CALL

Pg 1 of 2

Name: Scott Smith, Engineer Date: Dec 29 1983  
Firm: RWQCB - Central Valley Time: 11:00 AM  
Address: 3374 E. Shields Ave Person Taking or Making Call: Meeting - Linda Kruse  
Fresno, CA 93726  
Telephone No.: (209) 445-5116

Subject: TOSCO CORPORATION, BAKERSFIELD REFINERY - Status  
Message:

About 3 years there was a ditch around the facility which went to unlined ponds. The corporation was under waste discharge requirements and is in violation. The discharge to the ponds was stopped. Although the type of waste was not completely characterized phenols and Chromium were over the allowable levels. There are 4 lined facilities 3 of which are hazardous. Injection wells are in use for all waste water. Some of the water goes to the lined ponds but some is going to the injection wells. They are settling out the cokes.

The interim status document set up monitoring wells and 2 of the down gradient wells exceed MCL. Arsenic levels. The up gradient well is not showing signs of contamination. Possible source of arsenic contamination is an unlined ditch which is contaminated with arsenic. The well located in the NE corner of site is contaminated with arsenic. The site is being monitored & a soils study is underway to determine if any contamination has reached the ground water and shallow monitoring wells.

## MEMO OF CALL

Pg 2 of 2

Name: SCOTT SMITH, EngineerDate: Dec 29, 1983Firm: RWQCB - Central ValleyTime: 11:00 AM.Address: 3374 E Shields AVE  
Fresno, CA 93726Person Taking or Making Call: Meeting Linda KruseTelephone No.: (209) 445-5116

Subject: \_\_\_\_\_

Message: The primary liner on the land ponds is leaking, and it is unknown whether the secondary liner on the ponds is leaking. The 4th pond appears to be leaking and it has no secondary liner. The electrical conductivity (EC) ranging from 700 to 1200 umhos/cm are much higher than background levels of around 300 umhos/cm.

Another possible <sup>local</sup> source of contamination could be Getty Refinery located adjacent to TOSCO CORP.

The RWQCB is in process of issuing Clean up and Abatement Orders and will send a copy to us.

<b>RECORD OF COMMUNICATION</b>		<input type="checkbox"/> PHONE CALL <input type="checkbox"/> DISCUSSION <input type="checkbox"/> FIELD TRIP <input type="checkbox"/> CONFERENCE	
		<input checked="" type="checkbox"/> OTHER (SPECIFY) _____	
		(Record of item checked above)	
<b>TO:</b> Scott Smith RWQCB	<b>FROM:</b> B. Curnow	<b>DATE:</b> 7/15/83	<b>TIME:</b>
<b>SUBJECT:</b> Report - Abandoned Disposal Area			
<b>SUMMARY OF COMMUNICATION</b> <p>Smith expects report from Tosco 8/1/83.</p> <p>He asked that I <del>can</del> contact him to remind him to send a copy of Tosco's report.</p>			
<b>CONCLUSIONS, ACTION TAKEN OR REQUIRED</b>			
<b>INFORMATION COPIES TO:</b>			

<b>RECORD OF COMMUNICATION</b>	<input checked="" type="checkbox"/> PHONE CALL <input type="checkbox"/> DISCUSSION <input type="checkbox"/> FIELD TRIP <input type="checkbox"/> CONFERENCE <input type="checkbox"/> OTHER (SPECIFY) _____	
(Record of item checked above)		
<b>TO:</b>  Tim Souther    RWQCB Fresno (209) 445-5116	<b>FROM:</b>  B. Curnow	<b>DATE</b> 6/17/83    6/29/83 <b>TIME</b>
<b>SUBJECT</b>  205(j) Study to be funded by State Board		
<b>SUMMARY OF COMMUNICATION</b>  <p>Study has not yet been approved.</p> <p>Proposal of Kern County COG (study contractor) is: study groundwater quality of Fruitvale area of Bakersfield; delineate extent of contamination; identify sources of contamination.</p> <p>The study has not been approved yet because the State Board and Kern County COG cannot agree on the hazardous materials the study will focus on. State Board wants the study to emphasis phenols (even though phenol contamination appears to be decreasing and may not pose any risk). Kern COG wants the study to focus on EDB and 1,2 dicloropropane both of which have been detected in ground water. EDB and 1,2 dicloropropane are fumigants which have been subject to increasing controversy - the contamination problem has been compared to DBCP problem.</p> <p>It is not <del>XXXXXX</del> certain that the study will be approved if the two agencies cannot agree on study parameters.</p>		
<b>CONCLUSIONS, ACTION TAKEN OR REQUIRED</b>		
<b>INFORMATION COPIES</b> <b>TO:</b>		

<b>RECORD OF COMMUNICATION</b>	<input checked="" type="checkbox"/> <b>PHONE CALL</b> <input type="checkbox"/> <b>DISCUSSION</b> <input type="checkbox"/> <b>FIELD TRIP</b> <input type="checkbox"/> <b>CONFERENCE</b> <input type="checkbox"/> <b>OTHER (SPECIFY)</b>	
(Record of item checked above)		
<b>TO:</b> Scott Smith RWQCB Fresno (209) 445-5116	<b>FROM:</b> B. Curnow	<b>DATE</b> 6/16/83 <hr/> <b>TIME</b> 10:00
<b>SUBJECT</b> Tosco Refinery - Bakersfield		
<b>SUMMARY OF COMMUNICATION</b> <p>We discussed Tosco facility in general and ground water problem in the Fruitvale area.</p> <p>Ground water monitoring is being done quarterly. Results to date: 4 of 20 samples- high phenols (2 different wells); 1 of 4 samples gross alpha; 4 of 20 samples- arsenic in excess of drinking water standards; 1 of 20- chromium in excess of drinking water standard.</p> <p>Primary use of ground water is irrigation. Smith isn't sure about drinking water uses in the area.</p> <p>EPA has funded a 205(j) study which is being reviewed by RWQCB. Contact at Reg. Board: Tim Souther. Study will focus on phenol contamination of ground water in Fruitvale area of Bakersfield.</p> <p>RWQCB has ordered Tosco to conduct a study of on and off-site contamination including ground water. Smith is sending a copy of their order.</p>		
<b>CONCLUSIONS, ACTION TAKEN OR REQUIRED</b> <p>Contact Souther at RWQCB for more info on the 205 Study.</p> <p>Awaiting copy of RWQCB order and correspondence re: Tosco study.</p>		
<b>INFORMATION COPIES</b> <b>TO:</b>		

<b>RECORD OF COMMUNICATION</b>	<input checked="" type="checkbox"/> <b>PHONE CALL</b> <input type="checkbox"/> <b>DISCUSSION</b> <input type="checkbox"/> <b>FIELD TRIP</b> <input type="checkbox"/> <b>CONFERENCE</b> <input type="checkbox"/> <b>OTHER (SPECIFY)</b>		
(Record of item checked above)			
<b>TO:</b> Mohinder Sandu DOHS Fresno (209) 445-5321	<b>FROM:</b> B. Curnow	<b>DATE</b> 6/17/83 <hr/> <b>TIME</b> 10:30	
<b>SUBJECT</b> Tosco Refinery Bakersfield			
<b>SUMMARY OF COMMUNICATION</b> <p>We discussed: 1) Clean-up efforts by Tosco - ditch area and percolation ponds; 2) abandoned landfill area; 3) Tosco's possible bankruptcy or sale of the corporation to Coke Refinery:</p> <p>1) DOHS ordered clean-up of the ditch and ponds using CAM limits to determine adequacy of removal. DOHS has lead in monitoring this clean-up; however, RWQCB can intervene if they want to enforce stricter clean-up standards. The ditch has been cleaned to satisfaction of DOHS (although Sandu is concerned that contaminants other than heavy metals may be a problem). The ponds have not been cleaned up, but progress is being made.</p> <p>2) Sandu had no info regarding the abandoned landfill area. He advised however that past disposal practices in the Fruitvale area included landfilling of refinery and oil production wastes. He recommended that Tosco be ordered to study the problem.</p> <p>3) Sandu reported that Tosco was negotiating with Coke several months ago for the sale of the corporation. Tosco continues to experience financial problems. Several months ago after the deal fell through with Coke, Tosco reportedly filed a Chapter 11 bankruptcy and then withdrew it. It is possible that Tosco may file Ch. 11 again in near future. Coke was apparently concerned about potential liability for cleaning up the site and ground water problems in the area which may be traced to the refinery.</p> <p><i>Caufield - Tosco Rep.          Bill Kerstan works for Caufield</i></p>			
<b>CONCLUSIONS, ACTION TAKEN OR REQUIRED</b> <p>Contact U.S. Bankruptcy Court          (213) 688-3698    <i>call between 3-4</i></p>			
<b>INFORMATION COPIES</b> <b>TO:</b>			

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—  
CENTRAL VALLEY REGION**

SAN JOAQUIN WATERSHED BRANCH OFFICE  
3374 EAST SHIELDS AVENUE, ROOM 18  
FRESNO, CALIFORNIA 93726  
PHONE (209) 445-5116

Ref 2



*Bill  
We were missing this  
info. I asked Scott  
to send this to us.  
take a look at  
this FYE - appropriate  
File - @ 8/1/83*

31 May 1983

Mr. Jack Caufield  
TOSCO Corporation  
P. O. Box 2680  
Bakersfield, CA 93308

**WASTEWATER DISPOSAL ACTIVITIES - FRUITVALE OIL FIELD, KERN COUNTY**

In your letter of 31 March, you raised certain questions and requested clarification in specific areas regarding our letter of 11 March 1983 containing specific tasks and completion dates for addressing evidenced and potential soils contamination and ground water degradation at the Corporation's facility in the Fruitvale Oil Field. Subsequently, Scott Smith of our staff and I met with you and Bill Kerstan of your staff to discuss your concerns. The enclosed staff report dated 25 May 1983 provides a review of the items of concern. Outlined below are the topics discussed in the meeting and the specific information you requested.

**Extension of Task Completion Dates**

You requested an extension to 1 August 1983 for the submittal of the engineering report addressing Task No. I because a similar report also is to be submitted to EPA by 1 August 1983. The requested extension is reasonable to us.

**Task No. I - Development of Plans for Problem Assessment**

(Please refer to our letter of 11 March for statements of individual outputs under Task No. I)

Item I - 1. Table I of the enclosed staff report lists toxic substances frequently found in refinery wastewater. We are concerned that these substances have been present in the waste streams discharged to unlined surface facilities. Does the Corporation have any analytical data or other information that indicates which of these substances have not been present in any of the waste streams? This needs to be addressed in the Corporation's forthcoming engineering report.

SURNAME

A Brown  
5/26/83J M  
5/31/83

J M 5/31/83

31 May 1983

Item I - 2. To help determine if a sampling program for contaminants in the soils or ground water is necessary at the abandoned disposal site, please provide all available information, even though it may be incomplete, regarding (a) through (d) under Task No. I, Item 2.

Item I - 3. Degradation of ground water at the facility is evidenced in the quarterly monitoring submitted to date. We are concerned about the lateral and vertical extent of that degradation. The monitoring that has occurred to date does not provide that information. It is necessary that a plan be developed to determine the extent of ground water degradation.

In areas where soils excavation has occurred in the wastewater ditch, the degree of excavation appears adequate to protect ground water from heavy metals degradation. Any unexcavated portions of the ditch should be identified in the Corporation's forthcoming engineering report plus a description of measures to divert storm water from the old ditch area.

Excessive levels of chromium were found in the soils of Pond No. 1. Therefore, the engineering report should contain a plan for the determination of the depth and extent of excessive chromium concentrations in the soils. The plan should address concentrations of soluble chromium as determined by the CAM Waste Extract Test (WET). It also needs to address the determination of the vertical and lateral extent of contaminants in the soils of Ponds 2, 3, and 4. It should describe a new sampling program for the collection of soils samples for discrete, rather than composite, sample analyses.

Finally, we are concerned that, with the wide range of toxic organics that are frequently found in refinery wastewater, the unlined ponds may contain these compounds at excessive levels. Therefore, the plan should address any toxic organics present in previous discharges to the unlined ponds.

Item I - 4. Specific areas that should be addressed in your assessment of the suitability of the proposed harvest pond primary liner material are outlined in the enclosed staff report.

Item I - 5. We are concerned about the leak detection systems' ability to continue to monitor the performance of the primary liners. The revised waste discharge requirements will include a program for monitoring and reporting the performance of the primary and secondary liners.

#### Emergency Pond

Specific areas that should be addressed in your assessment of the emergency pond's ability to protect ground water given present conditions are outlined at the conclusion of the enclosed staff report.



Mr. Jack Caufield

-3-

31 May 1983

Waste Discharge Requirements

For purposes of developing waste discharge requirements, discharges to the harvest ponds, emergency pond, and the facility's wastewater injection wells need to be characterized. A list of EPA pollutants and hazardous wastes has been previously provided and needs to be addressed. Sufficient information needs to be provided on the variability in volume and chemical character of each waste stream to characterize the discharges.

We hope this information provided you with the clarifications you requested. Should you have any additional questions or comments, or are in need of further clarification on specific items, please call Scott Smith at this office.

F. SCOTT NEVINS  
Senior Engineer

CSS:iay

Enclosures

cc: Mr. Mohinder Sandhu, Department of Health Services  
Mr. Vern Reichard, Kern County Health Department

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD  
MEMORANDUM

TO: F. Scott Nevins *[Signature]*

25 May 1983

FROM: C. Scott Smith

SUBJECT: STAFF REPORT, TOSCO CORPORATION - FRUITVALE OIL FIELD, KERN COUNTY

On 6 April 1983, we received a letter from Jack Caufield of TOSCO Corporation (TOSCO). The letter was in response to a letter from staff dated 11 March 1983 (and an accompanying staff memo dated 9 March 1983) containing specific tasks and completion dates for addressing contaminants in the soils, ground water degradation, and problems with wastewater storage ponds at their facility. Their letter contained numerous comments and questions, and asked for clarification on certain tasks. On 27 April, you and I met with Mr. Caufield and Bill Kerstan of TOSCO to discuss their concerns. Summarized below are the specific areas in which TOSCO needed further clarification. Specific areas discussed are grouped below according to tasks as outlined in our letter of 11 March.

Task No. I - Development of Plans for Problem Assessment

Prior to 1 May 1983, submit a report (subject to our review and concurrence) which includes the following information:

- I - 1. Identification of all potential contaminants that have been disposed in surface facilities (wastewater ditch, unlined disposal ponds, harvest ponds, and emergency pond).

TOSCO Comments:

A clarification was requested by the TOSCO representatives regarding the type of information that needs to be provided pertaining to the various waste streams. They also commented on the limited amount of data available on previous discharges to the unlined ponds and wastewater ditch.

Staff Comments:

Numerous waste streams have been disposed at the facility, including TTC scrubber water, flare pit water, boiler blowdown, coker scrubber water, cooling tower blowdown, sour stripper water, desalter water, and spent caustic. Some of these waste streams were previously disposed in the wastewater ditch and unlined pond, and others have been disposed in the injection wells since their construction. Changes in refining operations have occurred in recent years, and we have not received an update on the generation of any new waste streams. We do not have a clear description of the source, chemical character, volume, and point of discharge for all of the waste streams that have been discharged.

25 May 1983

The petroleum refining industry in general discharges significant quantities of toxic pollutants. The actual levels of toxics discharged in any given refinery will vary with chemical nature of the crude oil being processed, processes used, products produced, and degree of treatment prior to discharge.

In 1979, EPA conducted a sampling program designed to analyze for the presence of toxic substances in refineries' raw wastewater and in treated effluent. The program included numerous refineries nationwide and the results were published in EPA's "Development Document for Effluent Limitations Guidelines and Standards for the Petroleum Refining Point Source Category". Table I (derived from the Document) summarizes the ranges of concentrations observed for those toxic substances detected in raw wastewater in a minimum of one sampling. Also given in Table I for comparison are established allowable concentration limits for the same. For refineries using biological treatment of raw waste, only a few cases were found where undesirable levels of toxic organic substances appeared in the final effluent. Not provided in the Development Document was the information necessary to make correlations between refinery processes (other than biological treatment) and raw wastewater characteristics. With the absence of any biological treatment prior to discharge, there is concern regarding which toxic organics may be present in the waste streams.

Previous analyses which TOSCO submitted for some of the waste streams included three of the substances listed on Table I (chromium, phenols and cyanide). In addition, soil samples collected in the upper profile of the wastewater ditch were found to have high levels for three of the heavy metals listed in Table I (chromium, lead, and zinc), and for three others not listed (mercury, nickel, and vanadium).

Item I - 2. A description of the abandoned disposal area, including (a) the location and period of use; (b) the types and estimated volumes of wastes discharged; (c) description of the disposal site (depth, surface area, and information on any liner materials used); (d) a description of the disposal activity itself (methods of conveyance and disposal of wastes); and (e) a preliminary assessment of the need for any soils and/or ground water sampling considering your responses to (a) through (d).

#### TOSCO Comments:

The TOSCO representatives indicated that little information is available regarding past activities in the abandoned disposal area, and that only its general, not exact, location is known to them.

#### Staff Comments:

On 10 June 1981, TOSCO submitted a Notice of Hazardous Waste Site with the EPA as required by the Comprehensive Environmental Compensation and Liability Act. TOSCO indicated that an abandoned disposal area had been

25 May 1983

previously used for disposal of refinery wastes, but that the types of wastes, their chemical character, and exact location of discharge were not known. We learned of the situation from Dan Shane of EPA.

TOSCO should provide whatever information is available, even though it may be only general and somewhat limited. The information will be the starting point for determining if a sampling program is necessary, and if so, its scope and extent.

- Item I - 3. A plan for the determination of the origin, and the vertical and lateral extent of ground water degradation, and of contaminants in the soil associated with the Corporation's discharge. The plan should include a time schedule for initiation and completion of the study.

#### Ground Water Degradation

##### TOSCO Comments:

The TOSCO representatives maintained that additional quarterly ground water quality monitoring data is needed before it can be concluded that water quality degradation has occurred as a result of waste disposal practices.

##### Staff Comments:

The quarterly ground water monitoring submitted to date has continually indicated a difference in concentration between the upgradient and three of the downgradient monitoring wells for numerous contaminants. Three of the constituents listed in Table I are presently being monitored for, and two of them (phenols and arsenic) have consistently been found high in one of the downgradient monitoring wells. Degradation of ground water is clearly discernible.

#### Contaminants in the Soils

##### TOSCO Comments:

The TOSCO representatives indicated that (1) a soils sampling excavation program for the four unlined ponds has been previously submitted; (2) sampling and excavation has been initiated in Pond No. 1; and (3) the soils sampling and excavation program was completed in the wastewater ditch. They inquired as to adequacy of the work completed to date on 1, 2, and 3 above.

##### Staff Comments

Soil samples were collected at varying depths and locations along the unlined wastewater ditch and analyzed for a full range of heavy metals. Samples of the surface sludge were found to contain concentrations for several heavy metals in excess of the CAM TTLC. Soils to a depth varying between 6 and 10 feet were removed. Samples collected at varying locations in the excavated trench were found to contain heavy metals concentrations well below the CAM TTLC.

25 May 1983

In October 1981, we received a letter from TOSCO outlining a procedure for sampling and excavation of contaminated soils in the four unlined ponds. The letter also indicated that some excavation has already occurred in Pond No. 1. On 4 May 1983, we received a letter from TOSCO containing the results of soil sampling for heavy metals in Pond No. 1 that occurred after the initial excavation. From four locations (two on the outer edge of the pond and two from the bottom), samples were collected at the surface and at 5 and 10 feet. Samples were then composited for each depth and analyzed for the full range of toxic heavy metals. The total chromium concentration (determined by acid extraction) reported for the surface composite was 143 mg/kg (average of two extractions) which is nearly three times the July 1981 CAM TTLC of 50 mg/kg. For all other composite samples, no excessive levels for any of the heavy metals were discerned.

In Pond No. 1, our concern centers around the threat posed to ground water from soluble chromium in the soils and we need to have their depth and extent determined.

The sampling program conducted to date was adequate to discern high levels of total chromium in Pond No. 1. However, to determine the potential impact on ground water quality, soluble chromium levels need to be determined. To obtain a clearer description of contaminant distribution in the soils, the remaining samples should not be composited prior to analysis.

Finally, the soils sampling program does not address toxic organics. Additional soil analyses should address their presence in waste streams that have been discharged to the unlined ponds.

Item I - 4. A plan that describes corrective actions to be taken to prevent continued leaking of the harvest ponds. The plan should include a time schedule for initiation and completion of the corrective measures.

TOSCO Comments:

The TOSCO representatives inquired as to the type of information they need to provide regarding the liner material they propose to use to remedy the primary liner leakage problem.

Staff Comments:

The information submitted to date regarding the proposed liner has been in the form of brochures from the liner manufacturer. The brochures provide only general information on liner characteristics. However, we need more specific information, as outlined below, before we can evaluate the adequacy of the proposed liner.

25 May 1983

A. Liner Specifications and Characteristics

1. Compatability with the wastes.
  - a. Temperature considerations
  - b. Chemical resistance to wastewaters and bottom sludges, taking into account stratification of wastes and any localized accumulation.
2. Estimated longevity of liner given the prescribed use.
3. Permeability

B. Field Installation

1. Method of application of liner material.
2. Measures to ensure proper installation.
3. Application thickness

C. Inspection and Repair

1. Frequency of visual inspections.
2. Method of performing any needed repairs.

D. Other considerations

1. Climatological effects on exposed portions of liner.
2. Procedure for removing bottom deposits and description of measures that will be taken to prevent damage to the liner.

Item I - 5. Assessment of the adequacy of the harvest pond leak detection system, specifically addressing (a) the condition of the secondary liner after continued exposure to wastewater, and (b) the appropriateness of the leak detection system design for early detection of the primary seal leakage.

TOSCO Comments:

The TOSCO representatives questioned the need to address (a) and (b) above, and maintained that the liner selection and leak detection system design were adequate because the specifications were submitted previously for staff review.

In February 1980, TOSCO submitted design specification and liner characteristics for the harvest ponds. A letter from staff to TOSCO dated 29 February 1980 stated, in part, the following:

"Our review of the plans indicates that you will have met the intent of our requirements by installation of the above ponds and the previously installed wastewater injection wells."

TABLE 1

## EPA PRIORITY POLLUTANTS DETECTED IN REFINERY WASTEWATER

<u>Constituents</u>	<u>No. of Samples</u>	<u>Concen- tration Range (ug/l)</u>	<u>Allowable Concen- tration (ug/l)</u>	<u>Source of Allowable Concen- tration**</u>
<b>Volatile Organics</b>				
Benzene	17	*ND- 5300	1.5	2
Chloroform	15	ND- 1500	.2	1
1,2 Trans-dichloroethylene	3	ND- 20	2.7	4
1,2-Dichloroethane	5	ND- 16	7	1
Ethylbenzene	15	ND- 180	1100	2
Methylene Chloride	19	ND- 1600	2.0	1
Toluene	18	ND-12000	340	4
Tetra-chloroethane	5	ND- 50	.2	1
<b>Acid Extractable Organics</b>				
2,4 Dimethylphenol	9	ND- 1200	Not estab.	--
2-Nitrophenol	1	1400	Not estab.	--
4-Nitrophenol	4	20- 5800	Not estab.	--
2,4 Nitrophenol	3	ND-11000	Not estab.	--
Pentachlorophenol	3	ND- 40	140	2
Phenol		13- 4900	3400	2
<b>Base/Neutral Extractable Organics</b>				
Acenaphthene	5	ND- 220	20	2
Anthracene and/or Phenathene	4	5- 230	Not estab.	--
1,4 Dichlorobenzene	1	1230	230	2
Fluoranthene	8	ND- 8	200	2
Isophene	2	230- 550	460	2
Naphthalene	17	ND- 3200	143	2
<b>Heavy Metals</b>				
Antimony	10	1- 360	145	5
Chromium	58	1- 2000	50	3
Copper	54	2- 1400	Not estab.	--
Lead	58	2- 960	50	3
Zinc	38	24- 3400	5000	2
<b>Other</b>				
Arsenic	14	3- 480	.02	2
Cyanide	4	ND- 3500	200	2
Phenolic Compounds	8	37-11200	1.0	2

\*ND - Not detected

- \*\* 1 - EPA Water Quality Criteria (WQC),  $10^{-6}$  Cancer Level Risk  
 2 - EPA WQC, Toxic Effects  
 3 - EPA Drinking Water Standards  
 4 - National Academy of Sciences, SNARLS  
 5 - EPA Suggested Limit

## DEPARTMENT OF HEALTH SERVICES

5545 E. SHIELDS AVE.  
FRESNO, CA 93727  
(209) 291-6676



April 19, 1983

Mr. Jack L. Caufield  
Tosco Corporation Refinery  
6500 Refinery Avenue  
Bakersfield, CA 93308

Dear Mr. Caufield:

As you are aware, on January 20, 1983, a representative from the U.S. Environmental Protection Agency conducted an inspection of your facility to evaluate compliance with your Interim Status Document (ISD) No. CAD000072769. A copy of the inspection report is enclosed and indicates the following deficiencies were noted:

1. 40 CFR 265.94(a), ISD Section VII.4 -- The fourth quarter groundwater analysis report had not been submitted to the Regional Water Quality Control Board.

The Regional Board has advised us that to-date this report has not been submitted.

2. 40 CFR 265.112(a), ISD Section V.2 -- The facility's Closure Plan is incomplete since it does not include the steps and costs for the closure of the four inactive surface impoundments.

As these inactive surface impoundments are not currently utilized for the storage or disposal of hazardous waste, it is not necessary to include them in your existing Closure Plan. However, a separate Closure Plan including a soil contamination assessment plan to determine the extent of soil contamination should be submitted for our review. A copy of this plan should also be submitted to U.S.EPA. Analytical data from this study must be utilized to formulate mitigative actions which may be required.

3. 40 CFR 265.143 and .145, DOHS letter dated August 1, 1982 -- The facility has an incomplete submission for Closure and Post-Closure financial assurances.



On February 7, 1983, you were requested to prepare and submit your Operation Plan. All deficiencies regarding Closure and Post-Closure financial assurances must be corrected and submitted with the Operation Plan.

In accordance with Section 66393, Title 22, California Administrative Code, you are requested to prepare a correction plan and submit it to this office within fifteen (15) days of receipt of this letter. The plan must specifically address actions you have taken or will take to correct the deficiencies noted above. If compliance has not been achieved by the date of your response, a time schedule for corrective actions must be included in the correction plan.

Sincerely,

James L. Stahler  
Regional Administrative  
Permit, Surveillance and  
Enforcement Section  
HAZARDOUS WASTE MANAGEMENT BRANCH

WAH/cr



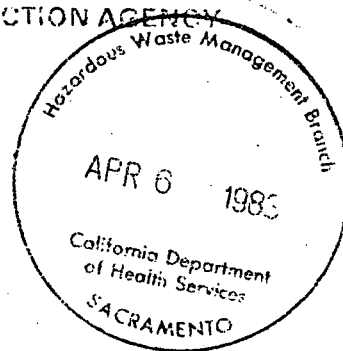
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

215 Fremont Street  
San Francisco, Ca. 94105

April 5, 1983

Robert Stephens, Deputy Director  
Division of Toxic Substances Control  
California Department of Health Services  
1219 K Street 3rd Floor  
Sacramento, CA 95814



Dear Dr. Stephens:

On January 20, 1983, a hazardous waste inspection was conducted at Tosco Refinery, Bakersfield (CAD000072769) by Daniel Shane of our Field Inspections Section. During the course of the inspection, information was gathered in accordance with Section 3007 of the Resource Conservation and Recovery Act (RCRA). A copy of our inspection report is enclosed with the Sacramento regional office's copy of this letter for their review and compliance follow-up action.

The purpose of this letter is to provide notice, pursuant to Section 3008(a)(2) of RCRA, that EPA has found Tosco Refinery, Bakersfield to be in violation of various State requirements and various Federal requirements contained in 40 CFR Part 265.

The following deficiencies were observed during the records review and facility inspection:

1. 40 CFR 265.94(a), ISD Section VII.4-- The fourth quarter groundwater analysis report has not been submitted to the Regional Water Quality Control Board.
2. 40 CFR 265.112(a), ISD Section V.2-- The facility's Closure Plan is incomplete since it does not include the steps and costs for the closure of the four inactive surface impoundments.
3. 40 CFR 265.143 and .145, DOHS letter dated August 1, 1982-- The facility has an incomplete submission for Closure and Post-Closure financial assurances.

In addition, during our inspection, ponded liquids were observed in the container and waste pile storage area. If these liquids are found to be a hazardous waste, run-on must be diverted away from the piles and any leachate or run-off must be properly managed.

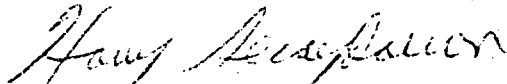
Section II.E.2 of the Phase I Memorandum of Agreement (MOA) makes it the primary obligation of the State to take timely

and appropriate action against persons in violation of facility standards. This section includes violations detected by Federal compliance evaluation inspections.

EPA believes it is appropriate that the State initiate enforcement action ordering compliance by a date certain. Please provide us with a copy of your compliance action or evidence of compliance within thirty (30) days of receipt of this letter. Please record enforcement actions related to this case on your monthly inspection and compliance reports.

If you have any questions or require additional information, please contact Paul D. Blais of my staff at (415) 974-8129.

Sincerely yours,



Harry Seraydarian

Director

Toxics & Waste Management Division

cc: Jim Stahler, DOHS-Sacramento  
(with enclosure)  
Angelo Bellomo, DOHS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: 16 MAR 1983

SUBJECT: Preliminary Assessment for Tosco Corporation Refinery,  
Bakersfield, California

FROM: Daniel Shane *Dms.*  
Field Investigator, Field Inspection Section (T-3-2)

TO: Keith Takata  
Chief, Remedial Response Section (T-3-1)

Thru: Bob Mandel *mm*  
Chief, Field Inspection Section (T-3-2)

Thru: Kathleen G. Shimmin *Kgs*  
Chief, Compliance and Response Branch (T-3)

*as opposed to a Notifact?*

Enclosed for your review is a preliminary assessment for Tosco Corporation, Bakersfield Refinery. Tosco Corporation submitted to EPA a Notification of Hazardous Waste Site and reported that hazardous waste associated with the refining of crude oil had been treated, stored and disposed on-site from the year 1940 to the year 1970. Tosco has been refining crude oil to produce gasoline and other petroleum products at its refinery since the year 1970. Past disposal practices include landfilling, drum burial, seepage ponds and open ditches.

During the RCRA oversight investigation of January 20, 1983, I gathered information on past hazardous waste disposal activities. An interview with Jack Caufield disclosed that an unknown quantity of hazardous waste was landfilled on refinery property. Mr. Caufield stated that several employees (old timers) were interviewed about past disposal practices and the comments he received from these individuals provided the information needed to complete the notification. However, information on the identity and quantity of hazardous waste and the exact location of the burial sites was not known. Mr. Caufield identified an area in the southwest portion of the facility which is believed to be the location of the burial sites. This area is an open field located between the Cross Valley Canal and the four active impoundments. (harvest ponds).

The results of the initial first-year groundwater analysis indicates that the facility may be contaminating the upper groundwater aquifer. The potential sources of the groundwater contamination include the old burial sites in the southwest portion of the facility, the four abandoned percolation ponds in the central portion of the facility, the abandoned drainage ditches in the north-central portion and northeast corner of the facility and the four active surface impoundments in the southwest portion of the facility.

According to Scott Smith of the California Regional Water Quality Control Board, the Board is currently re-evaluating the facility's groundwater monitoring program. Mr. Smith stated that the Board will require the facility to submit for review a more detailed groundwater quality assessment program.

Enclosures:

Potential Hazardous Waste Site, Site Inspection Report.  
RCRA oversight investigation, Site Inspection Report.  
EPA Notification of Hazardous Waste Site.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

SAN JOAQUIN WATERSHED BRANCH OFFICE:

3374 EAST SHIELDS AVENUE, ROOM 18

FRESNO, CALIFORNIA 93726

PHONE: (209) 445-5116

WAM: PG. REVIEW and  
Comment of and

mss

3/14/83



11 March 1983

Mr. Jack Caufield  
TOSCO Corporation  
P. O. Box 2680  
Bakersfield, CA 93308

## WASTEWATER DISPOSAL - FRUITVALE OIL FIELD, KERN COUNTY

The ground water quality monitoring submitted pursuant to your corporation's Interim Status Document (ISD) for the four quarters of 1982 shows that degradation of shallow ground water has occurred downgradient of TOSCO's disposal site. Our staff has previously met with you and preliminarily discussed our concerns over ground water degradation and other problems associated with past and on-going wastewater disposal activities.

We have recently made a further evaluation of the water quality problems associated with the operation. That evaluation is summarized in the attached staff report. The report indicates that, in addition to the ground water degradation that has already occurred, the potential exists for further degradation due to (1) soils with contaminants still in place; (2) leakage from the harvest ponds; and (3) inappropriate design of the emergency pond leak detection system. In addition, E.P.A. has recently informed us of the existence of an abandoned disposal area at the facility which was used between the early 1940's and 1970. They indicated to us that liquid wastes (presumably organic solvents, acids, and other materials containing heavy metals) were discharged on the property and that drums (of unknown contents) were possibly buried.

To address the above concerns, we are requesting TOSCO Corporation to perform the following tasks in accordance with the dates indicated. The work should be performed under the direction of a registered engineer or engineering geologist competent in hydrogeologic investigations of this nature.

11 March 1983

Task No. 1 - Development of Plans for Problem Assessment

Prior to 1 May 1983, submit a report (subject to our review and concurrence) which includes the following information:

1. Identification of all potential contaminants that have been disposed in surface facilities (wastewater ditch, unlined disposal ponds, harvest ponds, and emergency pond).
2. A description of the abandoned disposal area, including (a) the location and period of use; (b) the types and estimated volumes of wastes discharged; (c) description of the disposal site (depth, surface area, and information on any liner materials used); (d) a description of the disposal activity itself (methods of conveyance and disposal of wastes); and (e) a preliminary assessment of the need for any soils and/or ground water sampling considering your responses to (a) through (d).
3. A plan for the determination of the origin, and the vertical and lateral extent of ground water degradation, and of contaminants in the soils associated with the Corporation's discharges. The plan should include a time schedule for initiation and completion of the study.
4. A plan that describes corrective actions to be taken to prevent continued leaking of the harvest ponds. The plan should include a time schedule for initiation and completion of the corrective measures.
5. Assessment of the adequacy of the harvest pond leak detection system, specifically addressing (a) the condition of the secondary liner after continued exposure to wastewater, and (b) the appropriateness of the leak detection system design for early detection of primary seal leakage.

Task No. II - Implementation of Problem Assessment Work and Corrective Measures

1. Initiate and complete the studies for determination of the origin, and lateral and vertical extent of ground water degradation and contaminants in the soils according to the time schedule developed in Task No. I-3.
2. Initiate and complete the corrective measures to prevent continued leaking of the harvest ponds according to the time schedule developed in Task No. I-4.

Prior to the initiation of any corrective measures (including work on the harvest pond liners or excavation of soils from the unlined ponds or additional portions of the wastewater ditch), you should coordinate with our staff to afford a review of the data developed and the adequacy of the proposed measures for the protection of water quality.

Mr. Jack Caufield

-3-

11 March 1983

New waste discharge requirements will be developed to address changes in the handling of wastewaters that have occurred since the adoption of requirements in October 1977. More specifically, requirements are needed to address (1) changes in method of conveyance of wastewater; (2) relocation of wastewater facilities; (3) deep well injection of wastewater; and (4) the employment of the harvest and emergency ponds.

The California Water Code requires that a completed Report of Waste Discharge must be submitted with an appropriate filing fee. A Report of Waste Discharge form and filing fee schedule are attached. It will also be necessary to submit an engineering report concerning the waste disposal activities, addressing those items listed on the attached "Information Needs for Liquid Waste Disposal" and "Information Needs for Wastewater Injection". The engineering report should include identification of concentrations of all potential contaminants in each waste stream. The enclosed list of E.P.A. classified pollutants indicates those constituents whose concentrations should be determined. Also, concentrations of polynuclear aromatic hydrocarbons need to be determined. An analysis need not be performed for those constituents known not to be present, provided documentation of their absence is presented for each waste stream.

Please return the completed Report of Waste Discharge and requested engineering report by 1 May 1983. Following receipt of this information, we will formulate tentative waste discharge requirements for review by you and interested public agencies prior to formal presentation to the Board.

Finally, the continued use of the emergency pond without an adequate leak detection system is of concern to us, and could result in further water quality problems and resultant cleanup activities. Tentative waste discharge requirements will contain minimum performance criteria for the pond, but it is important that redesign of the leak detection system be initiated soon, and that you coordinate that work with our staff. Please submit new design specifications and a time schedule for construction for our review and comment by 1 May 1983.

If you have any questions on these matters, please call C. Scott Smith at this office.



F. SCOTT NEVINS  
Senior Engineer

CSS:iay

Attachments

cc: ~~Mr.~~ Mohinder Sandhu, Department of Health Services  
Mr. Vern Reichert, Kern County Health Department



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGIONSAN JOAQUIN WATERSHED BRANCH OFFICE:  
3374 EAST SHIELDS AVENUE, ROOM 18  
FRESNO, CALIFORNIA 93726

PHONE: (209) 445-5116

11 March 1983

Mr. Jack Caufield  
TOSCO Corporation  
P. O. Box 2680  
Bakersfield, CA 93308

## WASTEWATER DISPOSAL - FRUITVALE OIL FIELD, KERN COUNTY

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We have recently made a further evaluation of the water quality problems associated with the operation. That evaluation is summarized in the attached staff report. The report indicates that, in addition to the ground water degradation that has already occurred, the potential exists for further degradation due to (1) soils with contaminants still in place; (2) leakage from the harvest ponds; and (3) inappropriate design of the emergency pond leak detection system. In addition, E.P.A. has recently informed us of the existence of an abandoned disposal area at the facility which was used between the early 1940's and 1970. They indicated to us that liquid wastes (presumably organic solvents, acids, and other materials containing heavy metals) were discharged on the property and that drums (of unknown contents) were possibly buried.

To address the above concerns, we are requesting TOSCO Corporation to perform the following tasks in accordance with the dates indicated. The work should be performed under the direction of a registered engineer or engineering geologist competent in hydrogeologic investigations of this nature.

SURNAME

W 3/9/83

hmm  
3/11/83

JAA 3/11/83

11 March 1983

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Prior to 1 May 1983, submit a report (subject to our review and concurrence) which includes the following information:

1. Identification of all potential contaminants that have been disposed in surface facilities (wastewater ditch, unlined disposal ponds, harvest ponds, and emergency pond).
2. A description of the abandoned disposal area, including (a) the location and period of use; (b) the types and estimated volumes of wastes discharged; (c) description of the disposal site (depth, surface area, and information on any liner materials used); (d) a description of the disposal activity itself (methods of conveyance and disposal of wastes); and (e) a preliminary assessment of the need for any soils and/or ground water sampling considering your responses to (a) through (d).
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4. A plan that describes corrective actions to be taken to prevent continued leaking of the harvest ponds. The plan should include a time schedule for initiation and completion of the corrective measures.
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Prior to the initiation of any corrective measures (including work on the harvest pond liners or excavation of soils from the unlined ponds or additional portions of the wastewater ditch), you should coordinate with our staff to afford a review of the data developed and the adequacy of the proposed measures for the protection of water quality.

Mr. Jack Caufield

-3-

11 March 1983

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Please return the completed Report of Waste Discharge and requested engineering report by 1 May 1983. Following receipt of this information, we will formulate tentative waste discharge requirements for review by you and interested public agencies prior to formal presentation to the Board.

Finally, the continued use of the emergency pond without an adequate leak detection system is of concern to us, and could result in further water quality problems and resultant cleanup activities. Tentative waste discharge requirements will contain minimum performance criteria for the pond, but it is important that redesign of the leak detection system be initiated soon, and that you coordinate that work with our staff. Please submit new design specifications and a time schedule for construction for our review and comment by 1 May 1983.

If you have any questions on these matters, please call C. Scott Smith at this office.

F. SCOTT NEVINS  
Senior Engineer

CSS:iay

Attachments

cc: Mr. Mohinder Sandhu, Department of Health Services  
Mr. Vern Reichert, Kern County Health Department

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD  
MEMORANDUM

TO: F. Scott Nevins *fsn*  
FROM: C. Scott Smith  
SUBJECT: TOSCO REFINERY, KERN COUNTY

9 March 1983

On 8 November 1982, Sarge Green and I met with Messrs. Jack Caufield and Bill Kerstan of TOSCO to discuss on-going ditch cleanup activities at their refinery in the Fruitvale Oil Field near Bakersfield. They presented us with the complete heavy metals analyses for the four sludge samples collected from the surface of the ditch, and the six soil samples collected at depths varying from 6½ feet to 30 feet during the excavation.

In all sludge samples collected, concentrations of chromium, zinc, nickel and mercury were found in excess of the California Assessment Manual for Hazardous Wastes (CAM) total threshold limitation concentration (ttlc) values. For the six soil samples, the heavy metals concentrations were less than the CAM ttlc levels.

TOSCO has indicated that all the excavated soils will be transported to a temporary storage site at Petroleum Waste Management's proposed II-1 disposal site in western Kern County near Buttonwillow.

In summary, a review of the data indicates that the soil excavation from the ditch has significantly reduced the threat of ground water contamination at the TOSCO Refinery. However, TOSCO is aware that should additional water quality data reveal a degradation problem, they may be directed to conduct a more thorough study to determine the need for further excavation.

TOSCO is developing the final specifications and recommendations for installation of a pipeline in the excavated ditch. During the meeting, we indicated the need for them to include in their plans, methods for minimizing water contact with any remaining unexcavated soils (run-on, run-off, capping with an impermeable material over the pipeline area, etc.).

In addition, significant portions of the ditch in question have yet to be excavated. TOSCO should provide us with a description of the proposed additional soil sampling and excavation program for our review before initiating any additional excavation.

The elimination of the ditch and replacement with closed conduit for conveyance of wastewater should reduce the potential for ground water degradation. However, additional areas regarding the past and present wastewater disposal practices still need to be addressed. TOSCO needs to address (1) on-site and off-site ground water degradation; (2) soils excavations beneath previously used unlined disposal ponds; and (3) adequacy of protection afforded unconfined ground water by the liner systems of the harvest ponds and emergency pond. These areas are discussed in more detail below.

Ground Water Degradation

In July 1981, TOSCO was issued an Interim Status Document (ISD) by the then Hazardous Material Management Section of the Department of Health Services. The ISD required the implementation of a ground water monitoring program to determine the facility's impact on unconfined ground water. In accordance with the ISD, TOSCO, in November 1981, submitted an outline of their Ground Water Monitoring Program which briefly discussed procedures for determining the presence of any hazardous waste constituents in ground water and determining their extent and rate of movement. Four upgradient and five downgradient wells were installed and quarterly monitoring was performed during 1982. The results of monitoring conducted for the four quarters of 1982 have been submitted.

Review of the data indicates the following:

1. Three upgradient wells, namely Well Nos. U2, U3, and U4 (see Figure 1 attached) exhibited concentrations within drinking water standards for all constituents tested except iron and manganese.
2. Well No. U1 exhibited concentrations within drinking water standards for all constituents tested except arsenic, iron, and phenol.
3. Downgradient well No. D1 (see Figure 1 attached) exhibited concentrations in excess of drinking water standards for gross alpha, arsenic, phenols, sodium, manganese, iron, chloride, and electrical conductivity.
4. Gross alpha and arsenic were found in excess of drinking water standards in Well Nos. D1, D2, and D3.
5. All constituents tested, except nitrate, were found to be in excess of drinking water standards in a minimum of one sampling of downgradient wells.
6. In almost all cases where upgradient wells exhibit concentrations of a given constituent in excess of drinking water standards, the range in concentrations over the four months for respective downgradient wells generally showed further increases in concentrations for the same constituents.

Therefore, the monitoring received to date preliminarily indicates that ground water quality degradation has occurred as a result of wastewater disposal activities. TOSCO should be directed to expand their monitoring program to determine the extent of ground water contamination and the rate of movement of contaminants. The previously submitted "Ground Water Monitoring Program" provided a general outline of the procedures that would be employed for determining the above; however, a more detailed report is now needed that describes procedures for determining the distribution of contaminants.

### Soils Excavation

Prior to the use of the harvest ponds and emergency pond in November 1980, unlined disposal ponds (shown in Figure 1 attached) were used by TOSCO and previous owners for disposal of all uninjected wastewater. Disposal to these ponds has not been in compliance with Waste Discharge Requirements, Order No. 77-254, since their adoption in October 1977. In a letter dated 2 December 1981, TOSCO indicated, in part, their intentions to cleanup (excavate) soils that were contaminated from using the ponds. Prior to initiating any soils excavation activity, the full range of contaminants (including, but not limited to, those found in the wastewater ditch sludge samples) should be identified. Once identified, their vertical and horizontal distribution should be determined and used as an indicator to the degree of excavation needed to protect water quality.

### Harvest Ponds

The harvest ponds each contain a 50 mil layer of Chevron Industrial Membrane (C.I.M.) over 4" thick concrete slabs. Beneath the concrete, each pond has a leak detection system consisting of a single 3-inch A.B.S. perforated monitoring pipe underlain by a 30 mil polyethylene liner. Each pond covers approximately 1 acre and has a maximum depth (excluding a 2-foot freeboard) of about 10 feet.

Results of the leak detection system monitoring have been reported since February 1981. By March 1981, leachate was detected in Ponds 1 and 3, and by December 1981 in Pond 2. Figure 2 (attached) shows the average electrical conductivities of leachate reported from weekly monitoring. Indicated also are the periods when the ponds were known to be leaking and periods when they were empty for repairs. The actual time when each pond began leaking cannot be determined as the leak detection pipe is located such that the leachate level below the primary seal would have to rise about 3 feet before being detected in the monitoring pipe.

Based on the above, the harvest pond liners are inadequate to prevent leaks, and the ability of each leak detection system to effectively monitor the primary seals is questionable. In addition, the secondary liners have been continuously exposed to wastes and may no longer be suitable for leachate retention. In TOSCO's monitoring report submitted for October 1982, they indicated that they are going to investigate the replacement of the C.I.M. primary liners with a suitable material. Any major modifications in the harvest pond design should be preceded by an engineering report addressing the suitability of the chosen primary liner in protecting ground water quality and effectiveness of the leak detection systems in monitoring the primary seals.

Finally, future monitoring reports for the harvest ponds should include, in addition to electrical conductivity of the leachate, a summary of water levels measured in the leak detection system standpipes and levels in the ponds themselves.

#### Emergency Pond

The emergency pond was constructed to provide temporary additional storage at times when the harvest ponds were at full capacity or empty for repair. The pond contains a 30 mil polyethylene liner overlain by 12 inches of native soil. Beneath the liner at a depth averaging 15 inches, is a single 3-inch perforated A.B.S. pipe in gravel envelope intended for leak detection. No secondary liner is utilized to retain leachate for monitoring purposes. The pond covers approximately 5 acres and has a maximum depth (excluding a 2-foot freeboard) of about 6 feet.

During the construction of the emergency pond, standing water was encountered within 10 feet of the surface. Construction was discontinued until the water level dropped. From TOSCO's monthly monitoring reports, shallow ground water has been detected in the leak detection pipe over a period of about 3½ months out of the past 20 months.

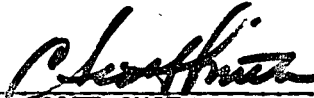
From the above, it can be reasonably assumed that only a major failure in the liner in relatively close proximity to the perforated pipe (or leak directly over the pipe) would be detected. The leak detection system cannot effectively monitor the performance of the liner and should be reconstructed according to specifications submitted for our review and comment.

#### Summary-Recommendations

TOSCO Corporation needs to conduct a thorough study to identify past and potential ground water contamination associated with previous and on-going wastewater disposal. An expanded program is needed to determine the extent of contamination and the rate of movement of contaminants. Additional concern centers around the continued use of the harvest ponds when they are continually leaking and utilize leak detection systems that are suspect. TOSCO should, therefore, determine the overall protection afforded ground water by the ponds, and be starting to prepare the plans for a soils sampling and excavation program for the unlined ponds and unexcavated portions of the wastewater ditch.

9 March 1983

Finally, with the changes in methods of wastewater disposal and storage that have occurred since the adoption of waste discharge requirements in October 1977, new waste discharge requirements need to be developed. With the partial elimination of the wastewater ditch, abandonment of the unlined disposal ponds, and use of the harvest ponds and emergency pond, new waste discharge requirements need to be developed to address these changes. New requirements must also address on-going wastewater injection activities at the facility.

  
\_\_\_\_\_  
C. SCOTT SMITH  
Staff Engineer

CSS:iay

Attachments



Fig. 1  
TOSCO Corporation  
Fruitvale Oil Field  
Kern County

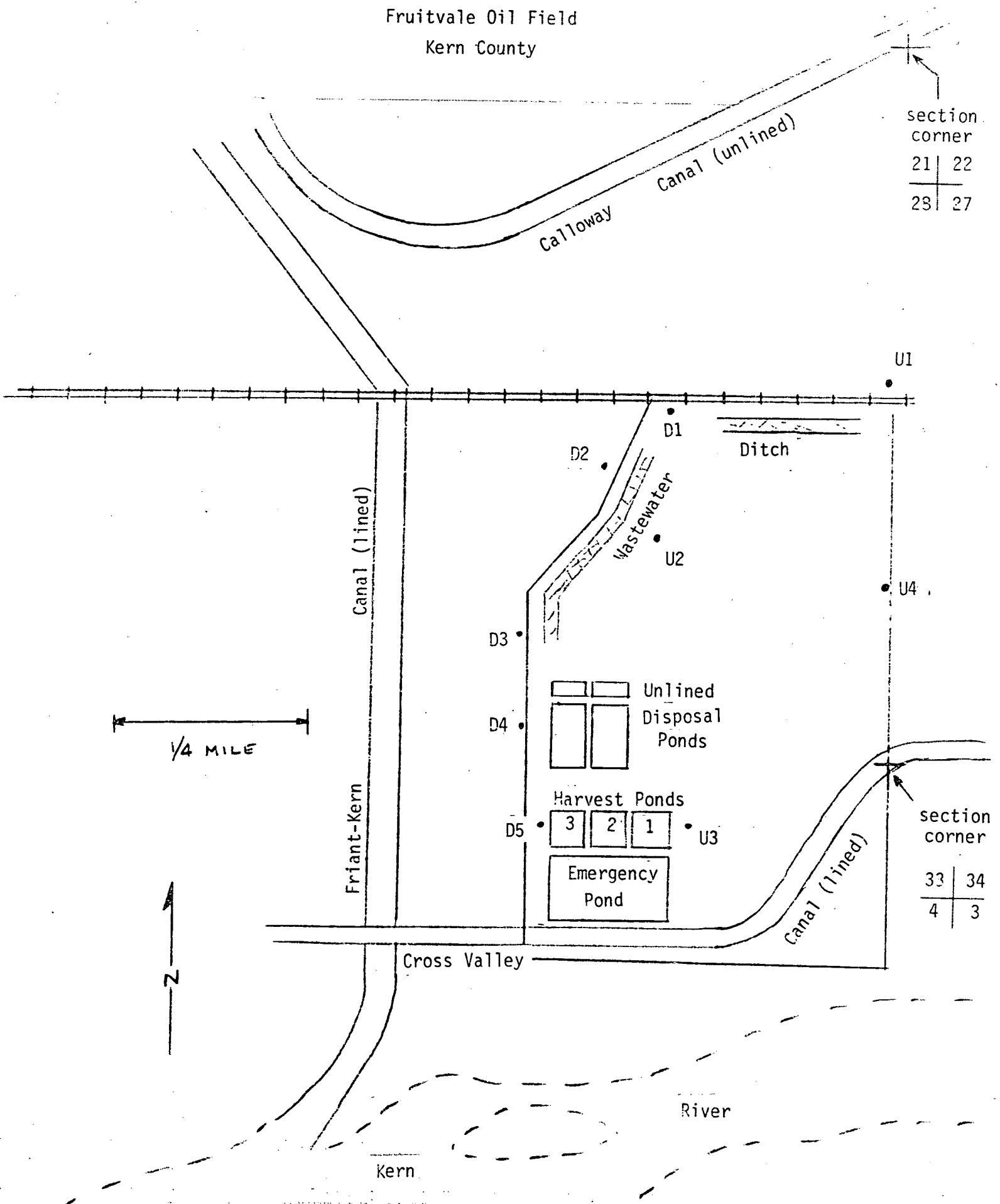


Fig. 2

TOSCO Corporation, Harvest Ponds  
Leak Detection System Monthly Monitoring  
1981-82

AVE. ELECTRICAL CONDUCTIVITY  
(umhos/cm)

12,000

10,000

8000

4000

3000

2000

Harvest Pond #2

LEAKAGE  
DETECTED

EMPTY  
FOR REPAIRS

Harvest Pond #3

Harvest Pond #1

LEAKAGE  
DETECTED

EMPTY  
FOR REPAIRS

POSSIBLE  
LEAK  
DETECTED

3/81

6

9

12

3/82

6

9

12

(umhos/cm)

DHS-TOX DIV  
FLETP  
Pl. review and response  
3/15/83

TOSCO CORPORATION

POST OFFICE BOX 2860  
BAKERSFIELD, CALIFORNIA 93303  
805/861-7400

March 7, 1983

Department of Health Services  
5545 East Shields Avenue  
Fresno, CA 93727

ATTENTION: Mohinder S. Sandhu,  
Hazardous Waste Management Branch

Dear Mr. Sandhu:

I am writing this letter in partial response to your letter dated February 9, 1983. Our Inspection Department is working on obtaining up-to-date certification of the integrity of our tanks in the injection well area. As soon as that information becomes available, I will forward it to you. Your letter noted several hazardous waste management practices which you felt were not adequate.

The following outline has been prepared in response to your comments.

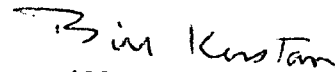
1. Secondary Containment in the Hazardous Waste Container Storage Area  
OK The asphalt pad was constructed over a year ago for the purpose of containing any spills which might occur during the temporary storage of empty and partially full drums and oily dirt prior to shipment offsite. Almost all of the drums stored in this area are essentially empty and did previously contain common treatment chemicals. It has always been our intention to use a vacuum truck to remove contaminated liquids which accumulate on the pad. As soon as spilled liquids are discovered, they will be vacuumed up.
2. Waste Water Tank Certification  
OK We will forward the certification when completed. when?
3. Labeling of Hazardous Waste Containers  
OK The hazardous waste containers are labeled when they are brought to the storage area. Normally, the drums do not stay in the storage area for longer than three months; however, since we cannot guarantee that all drums will be removed in 90 days, we make it a practice to label all drums put in the storage area.

Department of Health Services  
March 7, 1983  
page 2

Prior to your letter, we were not aware of any requirement to label empty drums before placing them in the drum storage area. We believe that our drum handling procedure currently complies with regulations. Our Environmental Engineering Department is supervising the shipment of drums to assure that the contents of all drums are properly identified.

If you have any questions on this letter, please call me at (805) 861-7423.

Sincerely,



Bill Kerstan  
Environmental Specialist

BK:scp

DHS. TOX DU  
Folio

1982 ANNUAL REPORT

- (A) The name and address of the reporting facility is:

TOSCO CORPORATION  
P. O. Box 2860  
Bakersfield, CA 93303

EPA ID No. is CAD 000072769

- (B) The period covered by this report is Jan-Dec., 1982.
- (C) Please refer to Attachment I for a description of the Hazardous Waste disposed of onsite.
- (D) Sediments in the ditch and percolation pond which carried waste water pursuant to Regional Water Quality Control Board Permit No. 77-254 were stored in place during most of 1982. In December of 1982, the ditch sediments were removed to a Class II-1 site. Percolation pond sediments are being stored in place, on site. The total volume of sediments from the ditch and percolation ponds amounts to approximately 62,529 tons.
- (E) A copy of the groundwater surface elevations is enclosed as Attachment II.
- (F) The 1982 revised Closure Cost Estimate is \$1,260,000.00.
- (G) I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete.

J. A. Kamps  
Print or Type Name

J. A. Kamps  
Signature

3-2-83  
Date

## ATTACHMENT 1

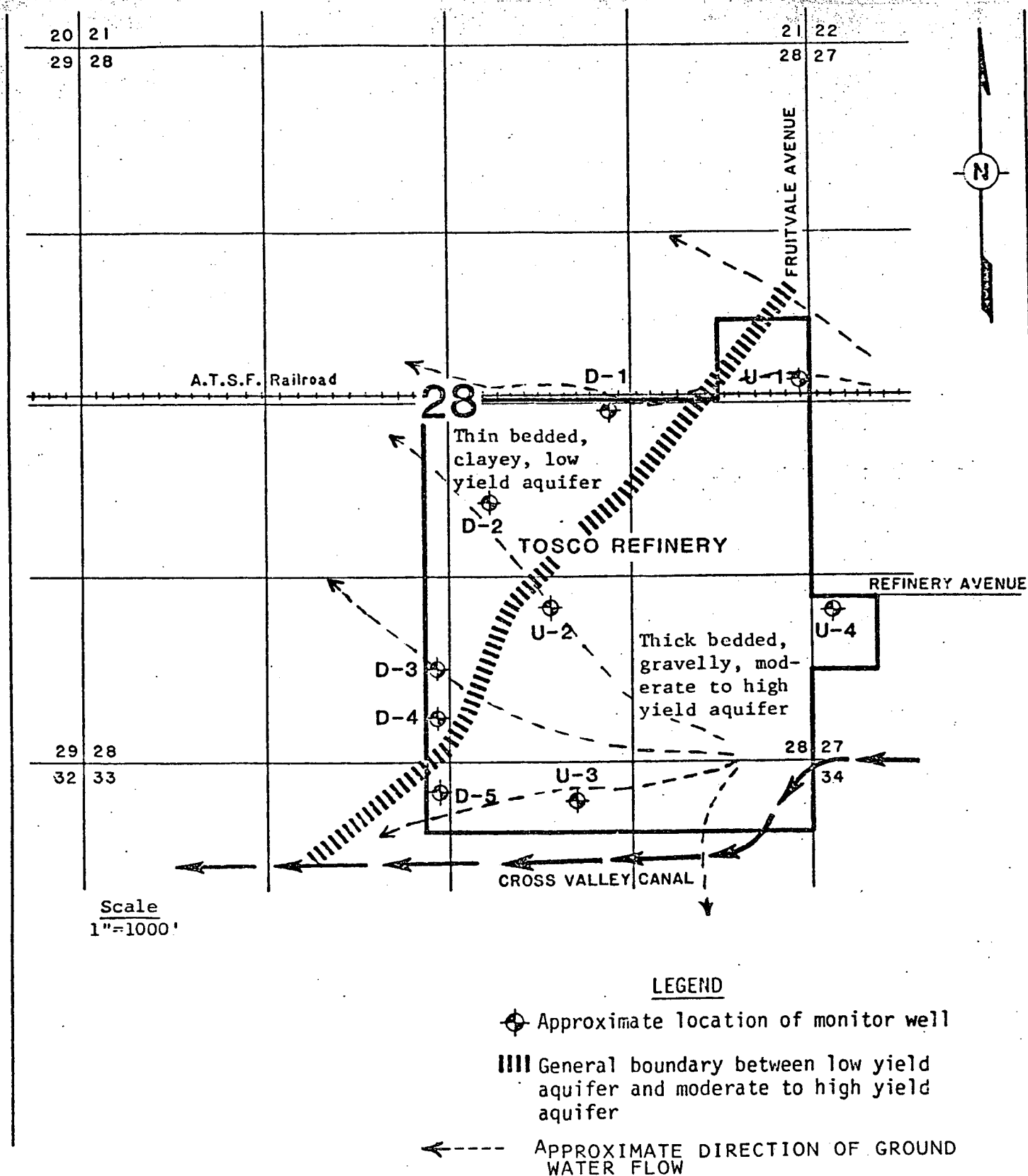
On November 16, 1982, Tosco Corporation's Bakersfield Refinery filed an application with the California Department of Health Services (DHS), which, based on analytical procedures prescribed by DHS, established that its wastewater streams (Injection Well No. 1 and No. 2) were not hazardous during 1982. DHS, by letter dated November 22, 1982, informed Tosco that the application was completed. Recently, DHS staff verbally advised Tosco that it concurs with Tosco's position that the wastewater injected into Well No. 1 was non-hazardous, but that it has declined to determine that Well No. 2 wastewater was nonhazardous. We expect to receive written confirmation shortly. Tosco continues to believe that the refinery wastewater injected into Well No. 2 in 1982 (a total of 497,431.9 tons) was not a hazardous waste, and it has not included the weight of that injected stream in this Annual Report.

# ATTACHMENT II

## ANNUAL REPORT OF GROUNDWATER SURFACE ELEVATIONS\*

WELL NO.	SURFACE ELEVATION*	SAMPLE DATE (1982)			
		MARCH 5	MAY 17	AUG. 23	NOV. 23
U-1	384.79	346.79	352.79	351.94	360.13
U-2	384.45	346.45	338.45	347.78	361.44
U-3	385.89	359.89	359.89	368.60	369.68
U-4	391.04	355.04	348.04	359.67	365.54
D-1	387.47	341.97	357.97	344.45	349.64
D-2	390.73	341.73	336.73	344.50	347.60
D-3	384.31	336.31	344.31	353.26	361.72
D-4	384.63	347.63	346.63	356.43	363.22
D-5	386.61	346.61	359.61	368.48	372.33

\* feet above sea level



### MONITOR WELL LOCATION MAP

JULY 1981

Monitor Well Construction at Tosco Refinery  
Bakersfield, California  
for Tosco Corporation

Project No.

81-3267

Figure No.



**Converse Consultants**

Geotechnical Engineering  
and Applied Sciences



## DEPARTMENT OF HEALTH SERVICES

5545 E. SHIELDS AVE.  
FRESNO, CA 93727  
(209) 291-6676



February 9, 1983

Mr. Bill Kerstan  
TOSCO Corporation  
Post Office Box 2860  
Bakersfield, CA 93303

Dear Mr. Kerstan:

We have reviewed your correction plan dated December 28, 1982, which outlines the actions you have taken to correct the deficiencies observed during our Interim Status inspection.

The actions you have taken appear to be satisfactory with the exception of the following items:

1. Secondary Containment in the Hazardous Waste Container Storage Area

The practice of allowing potentially contaminated liquids to evaporate on the asphalt surface is an unsatisfactory hazardous waste management practice. Any accumulated liquids should be removed immediately by vacuum truck or contained in a collection sump which meets the impermeability requirement.

2. Waste Water Tank Certification

The tank certification letters do not indicate tank life or an evaluation of their current integrity.

3. Labeling of Hazardous Waste Containers

All hazardous waste containers which will be stored for more than ninety (90) days must be labeled in accordance with the requirements of your Interim Status Document before being placed in the hazardous waste container storage area.

4. Waste Analysis Plan

You have indicated the Waste Analysis Plan is being updated and is completed by March 1, 1983. Please forward a copy of the plan to the office when it becomes available.

Please submit your response addressing the above items by March 2, 1983. I will, of course, verify corrective actions at the next scheduled inspection of your facility. Should you have any additional questions concerning this matter, please contact William Hage at (209) 291-6676.

Your cooperation in this matter is appreciated.

Sincerely,

Mohinder S. Sandhu  
HAZARDOUS WASTE MANAGEMENT BRANCH

MSS/cr

cc: Paul Blais, USEPA, w/attachments  
California Regional Water Quality Control Board, Fresno

## DEPARTMENT OF HEALTH SERVICES

5545 E. SHIELDS AVE.  
FRESNO, CA 93727  
(209) 291-6676



December 31, 1982

Mr. William Kersten  
TOSCO Corporation  
Post Office Box 2860  
Bakersfield, CA 93303

Dear Mr. Kersten:

We have reviewed the ditch elimination soil sample results submitted to this office on November 8, 1982. These sample results have also been submitted to the California Regional Water Quality Control Board.

The data indicates presence of certain persistent and bioaccumulative heavy metals in the ditch soil at levels below the total threshold limit concentrations (TTLC) and above soluble threshold limit concentration (STLC), as published in the Draft California Assessment Manual (CAM). The remaining soil contamination does not pose a direct risk to public health, but it may pose a threat to the groundwater.

To assess the potential risk to public health and environmental pollution from contaminants remaining in the ditch soil, please analyze the remaining soil samples further, utilizing the procedures outlined in CAM, to determine the soluble threshold limit concentrations (STLC) for those elements for which the CAM STLC values are exceeded. Please analyze each sample to determine the STLC's for each element as follows:

a. Sample 1

chromium, vanadium, zinc and copper

b. Sample 2

No analysis required

c. Sample 3

chromium and copper

d. Sample 4

chromium and copper

e. Sample 5

chromium, vanadium, zinc and copper

f. Sample 6

chromium, lead, vanadium, zinc and copper

Please submit the requested analyses to this office by December 20, 1982.

The data also indicate that the soil removed from the unlined ditch is a hazardous waste. This soil is temporarily stored at your facility. Please submit a written response to this office by December 20, 1982, which indicates where and when appropriate disposal of this hazardous soil will occur.

Should you have any additional questions concerning this matter, please contact William Hage at (209) 291-6676.

Sincerely,

James L. Stahler, P. E.  
Regional Administrator  
HAZARDOUS WASTE MANAGEMENT BRANCH

JLS  
WAH/cr

cc: Paul Blais, USEPA, Region IX  
Sargeant Green, CRWQCB, Fresno

RWQCB  
Fresno

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD  
MEMORANDUM

TO: Sargeant J. Green *J. Green* 16 November 1982  
FROM: C. Scott Smith  
SUBJECT: TOSCO CORPORATION WASTEWATER DITCH CLEANUP, FRUITVALE OIL FIELD,  
KERN COUNTY

TOSCO Corporation is presently in the process of removing contaminated soils from beneath their wastewater and yard drainage ditch at their refinery in the Fruitvale Oil Field. The ditch has been historically used for the conveyance of numerous waste streams, including chromium-laden cooling tower water, to unlined percolation ponds at the facility.

In a letter dated 19 November 1980, TOSCO proposed to excavate contaminated soils from the ditch by 1 March 1981, and replace the same with a lined ditch or pipe. Waste streams which exceeded waste discharge requirement limitations (Order No. 77-254 adopted in October 1977) would be separated at their source and conveyed in a steel pipe to a below-ground steel holding tank and ultimately injected into an underground formation. Clean storm runoff from areas not impacted by refinery operations would be collected and conveyed in a separate concrete pipe and spilled onto land at some point downstream.

On Friday, 31 October 1982, Bill Kerstan, an environmental engineer with TOSCO, called and informed us that the ditch excavation program had been initiated and was near completion. He inquired as to whether or not any additional soil samples needed to be collected and analyzed for heavy metals content and/or if any additional soils excavation needed to be performed before laying the new wastewater lines and then backfilling the trench. On 2 November 1982, I visited TOSCO to observe the excavation activities and become familiar with wastewater disposal activities at the facility. I was accompanied by Mr. Kerstan.

Thus far, soil from a section averaging about 15 feet wide and 7 to 20 feet deep has been removed from the ditch. Mr. Kerstan stated they used the soil discoloration (from past deposits) as an indicator for the degree of excavation. The soils being removed appeared very low in moisture content and freshly exposed side walls appeared basically dry below 3 to 6 feet. Traces of clay layers were observed in portions of the side walls at depths ranging between 5 to 7 feet.

I also visited TOSCO's wastewater ponds. No objectionable odors were discerned in the disposal areas. Of the four unlined percolation ponds that were previously used for disposal of all uninjected wastewater, only one, the "southwest" pond, contained any standing water. Ponds that are regularly being used for wastewater retention prior to injection are the "harvest" ponds (west, middle, and east), and an "emergency" pond. The middle harvest pond is presently empty for repair of the liner. The emergency pond was observed to be near capacity and is receiving wastewater pumped from the lower leg of the ditch. The condition of the double lined harvest ponds, the adequacy of the leak detection system for the same, plus the frequency of use of the emergency pond and the adequacy of its single liner for protecting ground water will all have to be looked into in greater detail in the near future. New waste discharge requirements may be in order since there will be a significant change in location, character, and volume of the discharge.

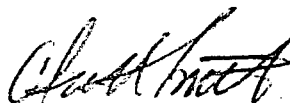
16 November 1982

After completing the tour, I met with Mr. Jack Caufield, Environmental Engineering Supervisor, and again with Mr. Kerstan, to obtain any data developed regarding the contaminated soils in the wastewater ditch. They provided me with the following:

1. The results of test hole borings performed by BSK and Associates in March 1981: A total of six borings were made to a depth of 30 to 35 feet. The soils were found to be predominantly well graded, medium to fine grained sands and silty sands. No clays were observed in any of the borings. In two of the borings, strong petroleum odors were observed at 15 to 20 feet from the surface. Free water (saturation) was encountered in all test holes between 25 and 30 feet.
2. Results of a recently performed analyses for soil chromium content: A total of six samples were collected at depths varying between 6½ and 18 feet, and submitted for heavy metals analysis. At the time of the visit, only total acid extractable chromium concentrations had been determined. Results of the remaining analyses will be forthcoming. Chromium concentrations reported ranged between 1.6 mg (upstream of the cooling tower water discharge) to 19 mg/kg with an average of 12 mg/kg. There is no apparent correlation between chromium content and soil sample depth or distance downstream from the discharge; in fact, the highest observed concentration was from a sample collected at 18 feet, at a point about halfway between the wastewater discharge locations and the farthest downstream sample location.
3. More complete results of a recently performed analyses for heavy metals content from a sample collected at an estimated 30 feet beneath the ditch. The sample was collected from the bottom of a large, recently-dug pit situated over the center of the previous ditch. The laboratory determined the total acid extractable concentrations of 18 toxic heavy metals. For all metals tested, the reported concentrations were less than TTLC levels contained in the CAM.

#### RECOMMENDATIONS:

Although behind their originally submitted time schedule, TOSCO is now well on their way towards complying with effluent limitations contained in their waste discharge requirements. The unlined ponds which previously received wastewater are no longer in use and the ditch that conveyed these wastes is being eliminated. However, before the water quality concerns surrounding the previous use of the ditch can be completely resolved, further soil excavation may be necessary. TOSCO informed me that they would be providing us with the remaining soil chemical analyses once they are available. Until the additional data becomes available, I have no specific recommendations to offer regarding the excavation activity.



---

C. SCOTT SMITH, Staff Engineer

DEPARTMENT OF HEALTH

5545 EAST SHIELDS AVENUE

FRESNO, CA 93727

(209) 291-6676



November 3, 1982

Mr. William Kerstan  
TOSCO Corporation  
6500 Refinery Avenue  
Bakersfield, CA 93308

Dear Mr. Kerstan::

Attached is the Interim Status Inspection report regarding the inspection of your facility conducted on September 2, 1981. Please prepare a correction plan as required by Section 66393, Title 22, California Administrative Code. The plan must specifically address the actions you will take to correct the deficiencies listed in Section V of the report including a reasonable time schedule to correct each deficiency.

Please submit the correction plan to this office by December 10, 1982.

Sincerely,

James L. Stahler, P.E.  
Regional Administrator  
HAZARDOUS WASTE MANAGEMENT BRANCH

Attachment

cc: Paul Klais, USEPA, Region IX *w/attachment*

Report of Inspection  
TOSCO Corporation  
Bakersfield Refinery  
September 2, 1981

Purpose

Interim Status Inspection  
EPA I.D. No. CAD 000072769

State Representatives

Arhinder Sandhu, HWMB, Fresno  
William Hage, HWMB, Fresno

Facility Representatives

Jack L. Caufield, Manager of Environmental Affairs  
Charles Timms, Corporate Counsel  
Chuck Mulkey, Environmental Engineer

Description of Facility

This facility is engaged in the refining of crude oil to produce gasoline and related petroleum products.

Observations

The following items of non-compliance with the ISD requirements were noted:

1. No secondary containment provided for hazardous waste container storage area.
2. Waste water storage tanks have not been certified by a registered California engineer to be structurally sound and of adequate construction for the intended use.
3. No NFPA placarding.
4. Hazardous waste storage containers are not properly labeled.
5. Owner/Operator had not prepared a written Waste Analysis Plan.



DHS TOX DIV  
Fresno  
June 3, 1982

Mr. Bill Kerstan  
Tosco Corporation  
P. O. Box 2860  
Bakersfield, CA 93303

Dear Mr. Kerstan:

We have received and reviewed groundwater monitoring sample analyses dated April 20, 1982. We find the parameters of analysis are incomplete under the requirements of your Interim Status Document (ISD) as follows:

- a. Parameters characterizing the suitability of the groundwater as a drinking water supply as specified by EPA in Appendix III, Part 265, Title 40, Code of Federal Regulations.  
Samples were not analyzed for:

1. Radium
2. Turbidity
3. Coliform bacteria

These parameters are listed in your ISD in Section 2(b) under the heading entitled "Ground-water Monitoring". Section 2(c) and (d) under the same heading outlines the frequency of sampling required by your ISD. Section 3 under the same heading describes the preparation of the outline for your groundwater quality assessment program.

Should you have any further questions concerning this matter, please contact this office.

Sincerely,

Mohinder S. Sandhu  
HAZARDOUS WASTE MANAGEMENT BRANCH

cc: CHWQCB, Fresno

DHS TOX DIV  
Fresno

CHEMICAL ANALYSIS



LABORATORIES INC

PETROLEUM

4100 PIERCE ROAD, 93308

J. J. EGLIN, REG. CHEM. ENGR

BAKERSFIELD, CALIFORNIA 93308

PHONE 327-4911

Tosco Corporation  
P. O. Box 2860  
Bakersfield, California

Date Reported: 3/3/82  
Date Received: 2/26/82  
Laboratory No.: 2056, 2057

BACTERIOLOGICAL WATER ANALYSES

Sample Descriptions:

#1 - Groundwater Well D-1 2/26/82 1:30 PM Well Collected by: BK  
#2 - Groundwater Well D-2 2/26/82 3:30 PM Well Collected by: BK

<u>Sample No.</u>	<u>Presumptive Test</u>	<u>Confirmed Test</u>	<u>MPN/100 ml Coliform</u>
1	5 positive	5 positive	greater than 16.
2	3 positive	3 positive	9.2

B C LABORATORIES, INC.

BY J. J. Eglin  
J. J. Eglin

ad

AGRICULTURE

CHEMICAL ANALYSIS

PETROLEUM

BC

LABORATORIES INC

J. J. EGLIN, REG. CHEM. ENGR

4100 PIERCE ROAD, 93308

BAKERSFIELD, CALIFORNIA 93308

PHONE 327-4911

Tosco Corporation  
P. O. Box 2860  
Bakersfield, California 93303

Date Reported: 3/4/82  
Date Received: 3/1/82  
Laboratory No.: 2170- 2172

## BACTERIOLOGICAL WATER ANALYSES

Sample Descriptions:

Collected by: J. Pionessa

#1 - Groundwater Well D-3 3/1/82 9:50 AM Well  
#2 - Groundwater D-4 3/1/82 11:40 AM Well  
#3 - Groundwater D-5 3/1/82 2:45 PM Well

<u>Sample No.</u>	<u>Presumptive Test</u>	<u>MPN/100 ml Coliform</u>
1	negative	less than 2.2
2	negative	less than 2.2
3	negative	less than 2.2

B C LABORATORIES, INC.

BY

*J. J. Eglin*  
J. J. Eglin

ad

82 MAR 15 P 5:21

CHEMICAL ANALYSIS

PETROLEUM

BC

LABORATORIES INC

J. J. EGLIN, REG. CHEM. ENGR.

3016 UNION AVE. BAKERSFIELD, CALIFORNIA 93305 PHONE 324-1815

MAIN OFFICE, 4100 PIERCE ROAD, BAKERSFIELD, CA. 93308 PHONE 327-4911

Tosco Corporation  
P. O. Box 2860  
Bakersfield, California 93303

Date Reported: 3/8/82  
Date Received: 3/2/82  
Laboratory No.: 2262 - 2265

### BACTERIOLOGICAL WATER ANALYSES

#### Sample Descriptions:

Collected by: J. Pionessa

#1 - Groundwater U-3 3/2/82 9:00 AM Well  
#2 - Groundwater U-2 3/2/82 10:20 AM Well  
#3 - Groundwater U-1 3/2/82 1:45 PM Well  
#4 - Groundwater U-4 3/2/82 3:35 PM Well

<u>Sample No.</u>	<u>Presumptive Test</u>	<u>Confirmed Test</u>	<u>MPN/100 ml Coliform</u>
1	1 positive	1 positive	2.2
2	4 positive	4 positive	16.
3	5 positive	5 positive	greater than 16.
4	4 positive	4 positive	16.

B C LABORATORIES, INC.

BY

*J. J. Eglin*  
J. J. Eglin

ad

22 : 01A 6 MAR 28

Tosco Corp. Bkfld



# EAL Corporation

2030 Wright Avenue  
 Richmond, California 94804  
 (415) 235-2633  
 (TWX) 910-382-8132

## ANALYSIS REPORT

Customer: Tosco Corporation  
 Post Office Box 2860  
 Bakersfield, California 93303

Date: April 20, 1982

Samples Received: March 5, 1982

Attention: Bill Kerstan

EAL W. O. No. 45-0191

Purchase Order No.: BA 115942

Analysis	Units	U-1	U-2	U-3	U-4
		38' 1:45 PM 3/2/82 2136-1-1	38' 10:20 3/2/82 2136-1-2	26' 9:00 AM 3/2/82 2136-1-3	36' 3:35 PM 3/2/82 2136-1-4
Phenol	mg/L	0.2	< 0.1	< 0.1	< 0.1
Chloride	mg/L	88	64	82	70
Sulfate	mg/L	3.7	120	39	38
Conductivity	umhos/cm	940	680	480	400
Gross Alpha	pCi/L $\pm 2\sigma$	7.4 $\pm$ 4.2	10 $\pm$ 3	2.4 $\pm$ 1.4	7.0 $\pm$ 2.3
Gross Beta	pCi/L $\pm 2\sigma$	21 $\pm$ 8.6	8.7 $\pm$ 3.1	5.3 $\pm$ 2.4	11 $\pm$ 2.8
Arsenic	mg/L	0.14	0.12	0.007	0.036
Barium	mg/L	0.22	0.1	< 0.1	0.15
Cadmium	mg/L	< 0.004	0.004	< 0.004	0.004
Chromium	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Lead	mg/L	< 0.03	< 0.03	< 0.03	0.04
Total Dissolved Solids	mg/L	590	490	280	270

- Continued -

LEP:pv

Larry E. Penfold  
 Program Manager

EAL Corporation laboratories are Accredited by the American Industrial Hygiene Association; approved by the State of California for complete chemical, radiological, bacteriological and bioassay analyses; licensed by the State of California as a Clinical Chemistry laboratory.

Date: April 20, 1982

Customer: Tosco Corporation

Samples Received: March 5, 1982

Attention: Bill Kerston

EAL W.O. No.: 45-0191

Analysis	Units	D-1 46' 1:30 PM 2/26/82 2136-1-5	D-2 49' 3:30 PM 2/26/82 2136-1-6	D-3 48' 9:50 AM 3/11/82 2136-1-7
Phenol	mg/L	3.4	0.2	< 0.1
Chloride	mg/L	350	110	80
Sulfate	mg/L	120	330	210
Conductivity	µmhos/cm	2,800	1,800	1,100
Gross Alpha	pCi/L ± 2σ	45 ± 10	11 ± 7	28 ± 8
Gross Beta	pCi/L ± 2σ	40 ± 10	26 ± 7	24 ± 9
Arsenic	mg/L	0.15	0.017	0.009
Barium	mg/L	0.38	< 0.1	0.12
Cadmium	mg/L	< 0.004	0.005	0.004
Chromium	mg/L	< 0.01	0.19	< 0.01
Lead	mg/L	< 0.03	< 0.03	< 0.03
Total Dissolved Solids	mg/L	1,600	780	790
Analysis	Units	D-4 37' 11:40 AM 3/1/82 2136-1-8	D-5 40' 2:45 PM 3/1/82 2136-1-9	Processed Blank 2136-1-10
Phenol	mg/L	< 0.1	< 0.1	< 0.1
Chloride	mg/L	62	49	< 1
Sulfate	mg/L	42	35	< 2.5
Conductivity	µmhos/cm	480	370	26
Gross Alpha	pCi/L ± 2σ	2.1 ± 2.1	7.7 ± 7.6	0.3 ± 0.8
Gross Beta	pCi/L ± 2σ	6.7 ± 2.5	52 ± 29	2.9 ± 1.9
Arsenic	mg/L	< 0.005	0.006	< 0.005
Barium	mg/L	< 0.1	< 0.1	< 0.1
Cadmium	mg/L	< 0.004	< 0.004	< 0.004
Chromium	mg/L	< 0.01	< 0.01	< 0.01
Lead	mg/L	< 0.03	< 0.03	< 0.03
Total Dissolved Solids	mg/L	270	220	< 5

Continued

Customer: Tosco Corporation

Attention: Bill Kerston

Date: April 20, 1982

Samples Received: March 5, 1982

EAL W.O. No.: 45-0191

Analysis	Units	U-1	U-2	U-3
		38' 1:45 PM 3/2/82 2136-1-1	38' 10:20 PM 3/2/82 2136-1-2	26' 9:00 AM 3/2/82 2136-1-3
Total Organic Halogen	µg/L	83	40	24
		123	17	30
		99	23	32
		140	47	22
pH	---	6.8	6.8	6.9
		6.8	6.8	6.9
		6.8	6.8	6.9
		6.8	6.8	6.9
Specific Conductance	µmhos/cm	940	680	480
		940	680	480
		940	680	480
		940	680	480
Total Organic Carbon	mg/L	50	5	3
		47	5	2
		47	5	2
		43	4	3

- continued -

Customer: Tosco Corp ion

Sample received: March 5, 1982

Attention: Bill Kerston

EAL W.O. No.: 45-0191

Analysis	Units	U-4	D-1	D-2
		36' 3:35 PM 3/2/82 2136-1-4	46' 1:30 PM 2/26/82 2136-1-5	49' 3:30 PM 2/26/82 2136-1-6
Total Organic Halogen	µg/L	48	175	158
		32	159	162
		39	162	168
		26	152	139
pH	---	6.9	7.0	7.7
		6.9	7.0	7.7
		6.9	7.0	7.7
		6.9	7.0	7.7
Specific Conductance	µmhos/cm	400	2,800	1,800
		400	2,800	1,800
		400	2,800	1,800
		400	2,800	1,800
Total Organic Carbon	mg/L	5	170	22
		6	180	18
		5	170	20
		5	170	18

- continued -



Date: April 20, 1982Customer: Tosco CorporationSamples Received: March 5, 1982Attention: Bill KerstonEAL W.O. No.: 45-0191

Analysis	Units	D-3 48' 9:50 AM 3/11/82 2136-1-7	D-4 37' 11:40 PM 3/1/82 2136-1-8	D-5 40' 2:45 PM 3/1/82 2136-1-9	Processed Blank 2136-1-10
Total Organic Halogen	µg/L	< 5	18	14	
		< 5	20	23	
		< 5	27	23	
		< 5	20	24	
pH	---	7.0	6.3	6.6	6.7
		7.0	6.3	6.6	6.7
		7.0	6.3	6.6	6.7
		7.0	6.3	6.6	6.7
Specific Conductance	µmhos/cm	1,100	480	370	26
		1,100	480	370	26
		1,100	480	370	26
		1,100	480	370	26
Total Organic Carbon	mg/L	13	5	3	< 1
		12	5	2	< 1
		12	5	2	< 1
		12	5	2	< 1

- continued -

Customer: Tosco Corporation

Attention: Bill Kerstan

Date: April 20, 1982

Samples Received: March 5, 1982

EAL W.O. No.: 45-0191

Analysis	Units	U-1 38' 1:45 PM 3/2/82 2136-1-1	U-2 38' 10:20 3/2/82 2136-1-2	U-3 26' 9:00 AM 3/2/82 2136-1-3	U-4 36' 3:35 PM 3/2/82 2136-1-4	D-1 46' 1:30 PM 2/26/82 2136-1-5
Mercury	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Selenium	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Silver	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoride	mg/L	0.7	0.3	0.2	0.2	0.6
Nitrate	mg/L	< 0.2	23	0.8	1.4	< 0.2
Iron	mg/L	24	9.6	0.43	54	12
Manganese	mg/L	2.2	1.9	0.01	1.6	3.2
Sodium	mg/L	110	130	50	41	520
Endrin	µg/L	0.14	< 0.01	< 0.01	< 0.01	< 0.01
Lindane	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-D	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-TP	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	µg/L	< 0.1	< 0.1	< 0.1	0.06	< 0.05
Analysis	Units	D-2 49' 3:30 PM 2/26/82 2136-1-6	D-3 48' 9:50 AM 3/11/82 2136-1-7	D-4 37' 11:40 PM 3/1/82 2136-1-8	D-5 40' 2:45 PM 3/1/82 2136-1-9	Processed Blank 2136-1-10
Mercury	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Selenium	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Silver	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoride	mg/L	1.5	0.7	0.2	0.2	< 0.1
Nitrate	mg/L	0.8	61	3.8	1.7	< 0.2
Iron	mg/L	15	8.6	0.89	0.30	0.027
Manganese	mg/L	0.97	11	4.4	0.03	< 0.01
Sodium	mg/L	260	200	48	23	< 0.02
Endrin	µg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Lindane	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-D	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-TP	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

*DHS TOX DIV*  
*Tosco* *Fresno*

TOSCO CORPORATION

POST OFFICE BOX 2860  
BAKERSFIELD, CALIFORNIA 93303  
805/327-2121

December 10, 1981



Mr. Tim Souther  
California Regional Water Quality  
Control Board  
Central Valley Region  
3374 E. Shields Avenue  
Fresno, CA 93726

Dear Mr. Souther:

At your request, I am enclosing a copy of our groundwater assessment program which was prepared in accordance with our Interim Status Document (Pg. 28).

Please review this outline and let us know if any additional amplification is required. We have completed the installation of the monitoring wells and will have water samples from each well analyzed shortly.

If you have any questions about our groundwater monitoring program, please contact me at (805) 831-7423.

Sincerely,

TOSCO CORPORATION

*Bill Kerstan*  
Bill Kerstan  
Environmental Engineer

BK:ka

Encl.

cc: Mohinder Sandhu - DOHS

## Outline of Tosco's Bakersfield Refinery

### Groundwater Quality Assessment Program November 19, 1981

Tosco Corporation has installed nine groundwater monitoring wells at the Bakersfield refinery. The wells were drilled at specific locations recommended by a consultant for meeting the requirements of the interim status document for storage and treatment of hazardous waste. In the event that contamination of the groundwater is found in any of the monitoring wells, Tosco will conduct the additional analysis described herein.

- (1) Determining whether hazardous waste or hazardous waste constituents have entered the groundwater.

If a routine sample is suspected of containing a hazardous waste or a hazardous waste constituent, another sample will be collected from the same well for analysis. If duplicate analysis of the second sample does not show evidence of contamination, the well will not be resampled until the next routine inspection period. If the second sample analysis confirms that the well is contaminated, the additional steps described below will be initiated.

- (2) Determining the extent of hazardous waste or hazardous waste constituents in the groundwater.

If contamination has been discovered in the monitoring well, additional samples from nearby wells will be taken and analyzed. If contamination is found in any of these wells additional samples will be taken from wells farther away until the extent of the contamination has been determined.

- (3) Determining the rate and movement of hazardous waste or hazardous waste constituents in the groundwater.

To determine the rate and movement of hazardous waste or hazardous waste constituents, information on unsaturated and saturated zone flow rates will be acquired by core sampling and chemical analysis, geohydrologic testing, and construction of additional monitoring wells, as necessary. At first a few core samples would be taken from areas close to the well that produced the contaminated samples. Analysis of these samples will indicate the concentration of the contamination and help locate the source. Additional core samples might then be indicated. Additional monitoring wells may also be drilled. At this point the Company may call upon a consultant to assist in geohydrologic testing to evaluate rate of movement and locating the source of contamination. If the Company has reason to believe that any off site source of water used for domestic purposes might be effected, the Company will notify the local Public Health Department and the Regional Water Quality Control Board.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGIONSAN JOAQUIN WATERSHED BRANCH OFFICE:  
3374 EAST SHIELDS AVENUE, ROOM 18  
FRESNO, CALIFORNIA 93726

PHONE: (209) 445-5116



5 November 1981

Mr. Jack Caulfield  
TOSCO Corporation  
P.O. Box 2860  
Bakersfield, CA 93303

→ File

## COMPLIANCE INSPECTION

Your refinery was recently inspected by a member of my staff to ascertain compliance with Waste Discharge Requirements, Order No. 77-254. A copy of the inspection report is enclosed.

The report concludes that you are not in compliance with Order No. 77-254 due to the discharge of wastes with constituents slightly in excess of effluent limitations. The report also noted that you have had some problems with cleanup of your percolation ponds, yard drainage ditch and with leaks in two of the three harvest ponds.

Please indicate to us by 1 December 1981, your proposals for resolving the above problems.

If you have any questions, please call Tim Souther at this office.

A handwritten signature in cursive script, reading 'Sargeant J. Green'.

SARGEANT J. GREEN  
Senior Land and Water Use Analyst

TGS:sm

Enclosure

cc: Mr. Mohinder Sandhu, Department of Health Services, Hazardous Materials  
Management Section  
Mr. Dave Mitchell, Division of Oil and Gas  
Mr. Vern Reichard, Kern County Health Department

MEMORANDUM

TO: Sargeant J. Green *Agan*  
FROM: Timothy G. Souther

DATE: 30 October 1981

SUBJECT: TOSCO CORPORATION, FRUITVALE REFINERY, KERN COUNTY

On 21 October 1981, I visited the subject facility to ascertain compliance with Waste Discharge Requirements, Order No. 77-254. I talked with Jack Caulfield, Chuck Mulkey and Dean Walker of TOSCO concerning the requirements and the Underground Injection Control (UIC) program.

Initially we discussed the ground water monitoring program that TOSCO is developing pursuant to the Interim Status Document issued by the Department of Health Services, Hazardous Materials Management Section. They have proposed the installation of nine wells to be completed through the unconfined aquifers to ascertain contamination of surficial aquifers. Please note the locations of these wells on the attached map. We have reviewed their proposal and approved the proposal concept in a letter to TOSCO dated 5 October 1981.

During the visit we toured the surface disposal ponds and drainage collection facilities. Along the northeast edge of the refinery, TOSCO has a ditch that collects yard drainage and TCC scrubber wastewater. The ditch transports the water and waste south to the unlined ponds. TOSCO is in the process of abandonment of the ditch and proposes to replace it with subsurface piping. TOSCO also proposes to remove contaminated soils from the ditch and haul them to a Class II-1 site. Part of this has been completed in the extreme northeast corner. Mr. Caulfield was not certain when this project would be completed.


The unlined ponds still contain sediments from many years of operation. Mr. Caulfield indicated that the sediments consist primarily of coke which they propose to remove. IMC Carbon, a neighboring industry, may be interested in processing this waste. The unlined ponds still are accepting TCC scrubber wastewater and yard drainage. Recent monitoring reports indicate that the discharge to these ponds exceeded the effluent limitation for sulfate, total dissolved solids, chromium, and pH on various occasions. The most recent report only indicates a slight increase in the sulfate concentration over the limit.

We also toured the company's lined ponds and noted that TOSCO was having problems with their harvest ponds and has had to utilize their emergency storage pond for containment of waste. Of the three harvest ponds, only the middle one was containing waste. The east and west harvest ponds had seepage into the secondary containment liner which was visible in the leachate monitoring wells. The well below the middle harvest pond was dry. The emergency storage pond contained about a foot of waste. Mr. Caulfield indicated that the waste would be allowed to evaporate.

30 October 1981

Finally, we discussed the refinery underground injection wells. I informed them that I did not propose to revise waste discharge requirements to reflect waste disposal via underground injection until the State Water Resources Control Board obtains certification for the federal UIC program. In the interim, we would be gathering background on injection wells in order to classify the wells. In order to do this, we went through the attached "UIC Program-Site Inspection Form". Most of the information was provided by Messrs. Caulfield and Mulkey. Additional information earlier provided by the Division of Oil and Gas was in our files. The information indicates that TOSCO's two wells inject about 840,000 gallons per day into the Etchegoin Formation at a depth of about 3,200 to 3,600 feet. The waste consists of cooling tower blowdown, boiler blowdown, and sour water. Recent DOG reports indicate that the waste is confined to the intended zones.

In summary, TOSCO is not in compliance with Order No. 77-254 due to discharging wastes with constituents slightly in excess of effluent limitations. Mr. Caulfield indicated that the waste probably causing the problem, TCC scrubbers, will be included in the wastes injected after February 1982. We should consider revising requirements to reflect the injection wells when the State Board has primacy for the federal UIC program.

  
TIMOTHY G. SOUTHER  
Staff Engineer

TGS:sm

## DEPARTMENT OF HEALTH SERVICES

5545 EAST SHIELDS  
FRESNO, CA 93727  
(209) 291-6676



October 29, 1981

Tosco Corporation  
Post Office Box 2860  
Bakersfield, CA 93303

Attention: Charles F. Mulkey

Gentlemen:

I have reviewed your letter of October 5, 1981 concerning modifications to your wastewater collection and treatment system and the cleanup of your old percolation ponds.

Since the modification of your wastewater collection and treatment system will improve your ability to handle hazardous waste, the approval is granted. We do not believe any modification of your ISD is necessary due to this change.

You have indicated that a 1980 lab test indicated the ditch soil is not a RCRA hazardous waste. Since you have not provided us with a copy of the analysis, we can not comment on it. Please note that ditch soil must be tested for suspected pollutants using the State approved test methods. If these test results prove the soil to be nonhazardous considering specific concentrations and hazards related in the draft CAM, no further action would be necessary. However, if the soil contains hazardous levels of contaminants, a cleanup action would be necessary. The above concerns should be addressed before the ditch is backfilled.

Concerning the percolation pond cleanup, approval is granted. Please forward any additional information as the cleanup proceeds. Please let us know in advance so we may obtain duplicate core samples. We also request you to coordinate the pond cleanup with the CRWQCB staff.



-2-

If you have any further questions, please feel free to contact  
Mohinder S. Sandhu of my staff.

Sincerely,

James L. Stahler  
Regional Administrator  
HAZARDOUS MATERIALS MANAGEMENT SECTION

WAH.cr

cc: California Regional Water Quality  
Control Board  
3374 East Shields Avenue, Room 18  
Fresno, CA 93726

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

SAN JOAQUIN WATERSHED BRANCH OFFICE:  
3374 EAST SHIELDS AVENUE, ROOM 18  
FRESNO, CALIFORNIA 93726  
PHONE: (209) 445-5116

DHS-TOX DIV.  
Fresno  
File TOSCO A  
and photocopy in  
EDMUND G. BROWN JR., Governor

5 October 1981

Mr. Charles H. Mulkey  
TOSCO Corporation  
P.O. Box 2860  
Bakersfield, CA 93303

## GROUND WATER MONITORING PROPOSAL

We have received your proposal for ground water monitoring pursuant to your Interim Status Document (ISD) issued by the State Department of Health Services, Hazardous Materials Management Section.

We note that you propose to install four upgradient and five downgradient wells at your Bakersfield Refinery. The wells are to be completed into the surficial aquifer and the wells are to be sampled quarterly and analyzed for constituents identified in the ISD. You indicate that the wells are located on refinery property such that they could identify only "additional contamination above background levels in the refinery area". This was presumably because TOSCO does not have access to the aquifer upgradient where the facility could not have affected its quality.

We feel that your proposal is an appropriate first step in identifying if there has been or is currently a contamination of ground water due to activities at the refinery. Analysis results of the next quarterly sampling should be submitted to this office upon completion.

However, your proposal does not include an outline of ground water quality assessment plan should you find significant contamination. This is also required by the ISD. (This is required under Section 3, Page 28.) This plan outline should be submitted for approval by 19 November 1981.

If you have any questions, please call Tim Souther of my staff.

SARGEANT J. GREEN  
Senior Land and Water Use Analyst

TGS:iay

cc: Mr. Mohinder Sandhu, State Department of Health Services  
Mr. Gunter Redlin, State Department of Health Services  
Mr. Vern Reichard, Kern County Health Department

DN5-70X DIV  
Fresno

**TOSCO CORPORATION**

POST OFFICE BOX 2860  
BAKERSFIELD, CALIFORNIA 93303  
805/327-2121

October 5, 1981



Mr. Mohinder Sandhu  
California Department of Health Service  
5545 East Shield Avenue  
Fresno, CA 93727

Dear Mr. Sandhu:

The purpose of this letter is to inform you of several proposed changes to our Wastewater Treatment System and to request written confirmation that these changes can be made during interim status. The changes that are planned are a modification to our wastewater collection and treatment system and the cleanup of our old percolation ponds. Following is a description of the projects.

Wastewater Collection and Treatment System Modifications

An existing unlined ditch is currently used to transport water from process area surface drains and blowdown from our Thermafor Catalytic Cracker (TCC) Wet Scrubber to the percolation ponds. Other wastewater streams discharged to the ditch in the past. Our wastewater discharges have been regulated by the Regional Water Quality Control Board (RWQCB) since 1960.

X We listed the ditch as a hazardous waste storage facility (S04) in our RCRA Part A application since it had in the past received a listed RCRA hazardous waste (heat exchanger bundle cleaning sludge, K050). In 1980, lab test results on the ditch sludge showed that it was not a RCRA hazardous waste. At times this year the wastewater in the ditch has exceeded our RWQCB discharge requirements. In order to resolve this compliance problem, we are replacing the ditch with a pipeline which will carry the water from process area drains and upsets to one of our double lined hazardous waste storage ponds.

The ditch will be replaced with a coated carbon steel pipeline which will convey wastewater from process area surface drains to an oil/water separator. The oil recovered from the oil/water separator will be recycled and the water will be conveyed to one of our double lined ponds before it is deep well injected. The pipelines and the oil/water separator will be placed within the perimeter of the existing ditch. A 18 inch cement pipeline will also be placed in the ditch to transport non-process area rainwater to a location where it can be percolated. See Appendix A for more specific information on the system and Appendix B for our proposed ditch cleanup procedures.

Mr. Mohinder Sandhu  
October 5, 1981  
Page 2

When the cooling tower treatment system is completed the TCC Scrubber blowdown will be recycled in the cooling tower treatment system. The scrubber fines will then be deposited with the treatment system wastes in one of the double lined ponds. The water will be recycled back to the cooling tower treatment system and whenever necessary the wet sludge will be removed from the ponds and hauled to an appropriate disposal site.

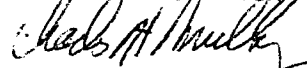
We discussed this project with EPA Region IX Staff prior to California's receipt of interim authorization to administer Phase I of RCRA and EPA indicated that this project can be done during interim status after amending our Part A application. This decision was based on the fact that we are not replacing our wastewater system but rather are just modifying it in order to comply with our RWQCB discharge requirements. EPA did want us to send them engineering drawings along with the revised RCRA Part A application. If you do concur with EPA's decision that we can proceed with this project during interim status, please let us know right away.

#### Percolation Pond Cleanup

The use of our percolation ponds will be stopped once our wastewater system modifications have been completed. These ponds were used for many years as part of the refinery's wastewater disposal system. The ponds received boiler blowdown, cooling tower blowdown, coker scrubber blowdown, TCC scrubber blowdown, surface runoff and water from various refinery drains and process upsets. Discharges to these ponds were regulated by the California Regional Water Quality Control Board. The use of ponds No. 1, 2 and 4 was discontinued prior to November 19, 1980 and most of the deposited material in pond #1 has already been removed and sold or sent to a Class II-I site. We will discontinue using pond #3 as soon as the modified wastewater system is in operation. When the ponds are dry we plan to remove the deposits left in the ponds and remove any contaminated soil as described in Appendix B. The main ingredient in the deposits is petroleum coke, which we may be able to sell as a product. Please let us know right away whether we can proceed with this project during interim status.

Sincerely,

TOSCO CORPORATION



Charles H. Mulkey  
Environmental Engineer

CHM:mm

cc: Tim Souther  
RWQCB

TOSCO CORPORATION

POST OFFICE BOX 2860  
BAKERSFIELD, CALIFORNIA 93303  
805/327-2121

JUL 13 11 34 AM '81

U.S.E.P.A.  
REGION 9  
COMM CNTR

ARTHUR C. RYDER  
REFINERY MANAGER

REF:ACR-16-81  
July 10, 1981

Mr. William D. Wilson  
Hazardous Materials Branch  
U.S. Environmental Protection Agency  
215 Fremont Street  
San Francisco, CA 94105

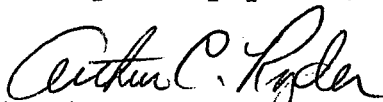
Dear Sir,

I received your letter dated July 7, 1981, Reference Number CAS000001488 yesterday. Through an oversight, I had failed to date the document when I signed it and your letter requested me to do so. I have dated the document June 5, 1981 which is the date that I originally signed the paper.

In your letter, you state that my notification will be regarded as late if I do not resubmit this information no later than August 7, 1981. I am hereby resubmitting today and assume that my notification is therefore still regarded as timely under the provisions of the Comprehensive Environmental Response, Compensation and Liability Act (Superfund).

I apologize for any inconvenience caused by my failure to affix a date at the time of my signing.

Very truly yours,

  
Arthur C. Ryder

Attachm:

cc: J.L. Caufield (w/Attach)  
E. Schwartz "